Daily Current Affairs
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Aditya L1 Satellite Into Final Orbit

- **Indian Space Research Organisation**, successfully entered Aditya L1 satellite into final orbit on 6th Jan 2024.
- ISRO informed that **Aditya L1 has successfully entered the Halo orbit** around the L1 point.
- Considered the most challenging task to precisely the satellite in **Halo orbit at Lagrangian point**, ISRO meticulously used the motor and thrusters from the Ground Command Centre which is **roughly 1.5 million km away**.

- The propulsion system of the spacecraft consisting of 440 Newton Liquid Apogee Motor, eight 22 Newton thrusters, and four 10 Newton thrusters were intermittently fired to take the spacecraft to the L1 point.
- Prime Minister Narendra Modi has applauded the **success of ISRO and expressed confidence** that we will continue to pursue new frontiers of science.
- The Union Minister of State for Science and Technology, Dr. Jitendra Singh has said that it is a glorious turn of year for Bharat as the country under the visionary leadership of Prime Minister Narendra Modi scripts another success story as **Aditya L1 reaches its final orbit** to discover the mysteries of the Sun-Earth connection.

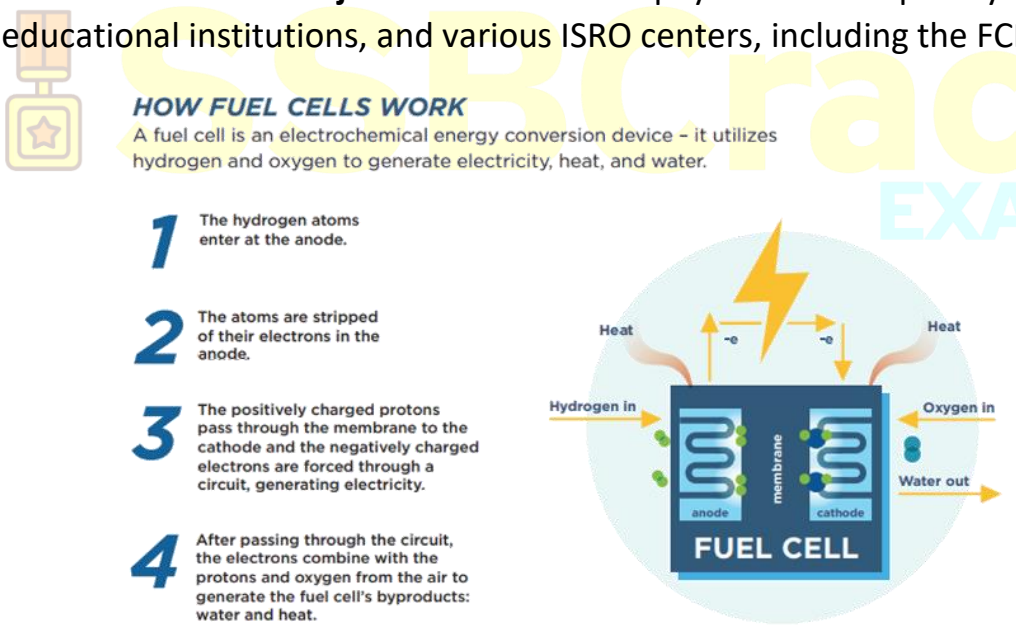
- **Aditya L1 is India's maiden Solar mission** to observe and study the Sun's Corona, understand its extreme heat and its influence on Earth.
- L1 is the Lagrangian Point where gravitational forces between the Earth and the Sun reach equilibrium and the Sun can be observed without the hindrance of eclipse.
- After the **launch from Sriharikota**, Aditya L1 had undergone four Earth bound manoeuvres and a Trans Lagrangian Point Insertion manoeuvres.

ISRO Tests Fuel Cell On PSLV-C58's POEM3 Platform

- Indian Space Research Organisation (ISRO) achieved a significant milestone by successfully testing a **100 W class Polymer Electrolyte Membrane Fuel Cell based Power System (FCPS) in its orbital platform, POEM3**.
- This remarkable feat took place **aboard the PSLV-C58 mission,** marking a crucial step in the assessment of fuel cell technology for future space missions.
- The primary objective of the experiment was to evaluate the operation of **Polymer Electrolyte Membrane Fuel cells** in the challenging environment of space. Additionally, the mission aimed to gather valuable data to inform the design of power systems for upcoming space endeavors.

- During the short-duration test **onboard POEM, the FCPS generated 180 W** of power by utilizing hydrogen and oxygen gases stored in high-pressure vessels.
- This successful test provided a **wealth of data on the performance** of various static and dynamic systems integrated into the power system, shedding light on the intricate physics at play.
- **Hydrogen fuel cells, employed in the FCPS**, have the unique ability to produce electricity directly from **hydrogen and oxygen gases**.

- Unlike conventional generators that rely on combustion reactions, fuel cells operate on electrochemical principles, similar to batteries.
- This **direct conversion process makes** them highly efficient, emission-free, and ideal for space missions where power, water, and heat are essential.
- Beyond space exploration, fuel cells hold significant potential for societal applications. They emerge as a promising solution for **replacing engines in various types of vehicles,** offering comparable range and fuel recharge times to conventional engines. Their distinct advantages over batteries make them a potential game-changer in achieving emission-free transportation.
- The **FCPS payload tested in the POEM-3 experiment** carries substantial implications for India's proposed space station, expected to be operational by 2035. This power system, capable of producing both electricity and pure water, aligns perfectly with the essential requirements of a space station.
- The successful launch of the **PSLV-C58 mission** also included the X-ray Polarimeter Satellite (XPoSat) mission. Alongside, the **POEM-3 experiment aimed to fulfill the objectives** of ten other payloads developed by start-ups, educational institutions, and various ISRO centers, including the FCPS.

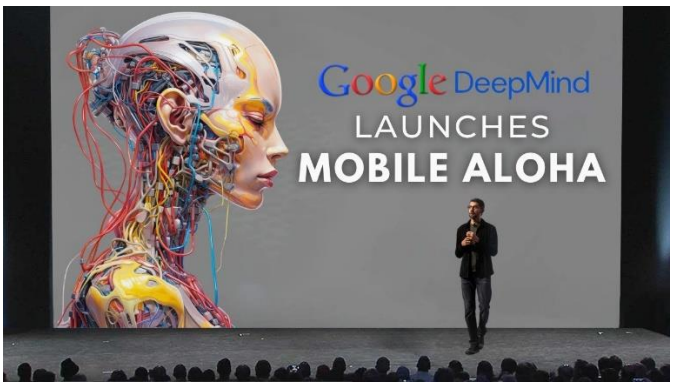


Google DeepMind Introduces Mobile ALOHA

- **Stanford University** has unveiled **Mobile ALOHA**, a robotic system designed to elevate the capabilities of **bimanual mobile manipulation.**
- This innovation builds upon the foundation of **Google DeepMind's ALOHA system**, taking it to new heights by introducing mobility and dexterity as focal points in robotic learning.

- Developed in collaboration with **Berkeley University and Meta, Mobile ALOHA** promises to reshape the landscape of robotics.

- **Mobile ALOHA extends the functionality** of Google's ALOHA system by integrating a mobile base and a whole-body teleoperation interface.
- This evolution enables the system to replicate complex mobile manipulation tasks, addressing the limitations of traditional imitation learning often confined to tabletop scenarios.
- The core objective of **Mobile ALOHA is data collection**, serving as a stepping stone for learning and mimicking a diverse range of bimanual activities.
- At the heart of Mobile ALOHA lies its ability to co-train with existing static ALOHA datasets, setting it apart from conventional robotic systems.
- Leveraging supervised behavior cloning and utilizing 50 demonstrations for each task, the system achieves remarkable success rates, enhancing performance on mobile **manipulation tasks by up to 90%.**



- This breakthrough empowers the robot to autonomously handle intricate scenarios, from sautéing shrimp to opening wall cabinets.
- Mobile ALOHA **transcends the boundaries of traditional robotics**, showcasing its potential for a myriad of real-world applications.
- The system excels in tasks such as calling and **entering elevators, storing heavy cooking pots, and rinsing used pans**.
- Its cost-effectiveness positions it as a practical solution, ushering in a new era in robotics where machines can perform a wide range of mobile manipulation tasks with precision and adaptability.

58th DGsP/IGsP Conference 2023

- Union Home Minister Shri Amit Shah inaugurated the **58th DGsP/IGsP Conference 2023 at Rajasthan International Centre, Jaipur**.
- The three day Conference is being held in **hybrid mode** with DGsP/IGsP and Chiefs of Central Police Organisations attending physically from Jaipur and over 500 Police officers of various ranks participating through video conferencing from across the country.
- The Union Home Minister distributed **Police Medals for Meritorious Service** to IB officers and awarded trophies for the three best Police Stations.
- Union Home Minister paid **homage to the martyrs from Security Forces** who had laid down their lives in the service of the nation and commemorated their supreme sacrifice.
- Union Home Minister **highlighted that in 2023 the nation has entered the Amrit Kal** and stressed upon **two important developments** viz. the formulation of New Education Policy and enactment of 3 New Criminal Laws replacing British era laws.

- He mentioned that the new laws are focused on **delivery of justice** instead of punishment and implementation of these laws would transform our criminal justice system as most modern and scientific.
- Home Minister stressed upon the need for training from SHO to DGP level and technology upgradation from **Thana to PHQ level** for successful implementation of new laws.
- He also stressed the need for linking of databases and adopting **AI driven analytical approach** for tackling the emerging security challenges.
- Union Home Minister pointed out an overall improvement in the security scenario in the country since **2014 especially the reduction of violence in the three critical hotspots**, i.e, Jammu & Kashmir, North-East and Left Wing Extremism.
- He observed that this Conference over the years has emerged as a **'Think Tank', facilitating decision** making and formulation of new security strategies. He emphasized on uniformity of structures, size and skill of counter terror mechanisms across the country.
- Union Home Minister also highlighted the role of internal security in realizing the Prime Minister Shri Narendra Modi's vision of India becoming a developed nation by 2047.

India-USAID MoU For Railways

- In a significant move towards **sustainable development,** the Union Cabinet, chaired by Prime Minister Narendra Modi, has given its approval for the Memorandum of Understanding (MoU) signed **between India and the United States Agency for International Development** (USAID).
- The focus of this collaboration is to support Indian Railways in achieving 'net **zero carbon emission'** by the ambitious target year of 2030.

- The collaboration envisions a comprehensive framework for bolstering sustainability within the Indian Railways system.
- The **primary objectives of this strategic alliance** are to facilitate utility modernization, deploy advanced energy solutions and systems, foster regional energy and market integration, encourage private sector participation and engagement, and conduct training sessions and workshops. The focus of these initiatives will be on specific technology areas such as renewable energy and energy efficiency.
- An **essential aspect of the MoU** is to assist Indian Railways in reducing their reliance on imported fuels like diesel and coal. Instead, the collaborative effort seeks to develop a robust energy efficiency policy, aligning with global sustainable practices.
- The MoU also addresses matters related to **long-term energy planning**, aiming to guide Indian Railways in adopting cleaner energy methods. It emphasizes providing technical support, planning for clean energy procurement, and charting a course for a sustainable and efficient future.

- To ensure the success of the MoU, both parties commit to **collaborative initiatives** such as hosting events, conferences, and capacity-building programs. These activities will serve as platforms for knowledge sharing, fostering innovation, and promoting the exchange of ideas on clean energy technologies.
- **USAID/India, known for its role in supporting international development**, will play a pivotal role in assisting India in economic growth, agriculture, trade, clean energy, global health, democracy, humanitarian aid, climate change issues, and conflict management.

REVIEW QUESTIONS

1. **What Technology Did ISRO Test Aboard PSLV-C58's POEM3 Platform**

A. Solar panels
B. Fuel cell power system
C. Advanced sensors
D. Robotic arms

ANSWER: B

2. **What Did Suchetha Satish Achieve In The UAE**

A. New World Record In Sports
B. Record For Singing In The Most Languages
C. Invention Of A New Musical Instrument
D. Leading A Climate Change Initiative

ANSWER: B

3. **Where Did The 58th DGsP/IGsP Conference 2023 Take Place**

A. Mumbai
B. Jaipur
C. Delhi
D. Kolkata

ANSWER: B

4. **What Was The Goal Of The India-USAID Mou For Railways**

A. Achieving 'Net Zero Carbon Emission' By 2030
B. Developing High-speed Rail Networks
C. Creating A New Railway Station Model
D. Enhancing Freight Transportation Efficiency

ANSWER: A

5. **In Which Year Was The First Edition Of 'Gunotsav' Organized In Assam**

A. 2015
B. 2017
C. 2019
D. 2020

ANSWER: B

6. Recently Mouban Secured GI Tag Is Variety Of

A. Cloth
B. Wood carving
C. Honey
D. Spices

ANSWER: C

7. Which Country To Export 10,000 MW Of Power To India In The Next 10 Years

A. Nepal
B. Bhutan
C. Bangladesh
D. Sri Lanka

ANSWER: A

8. Company Won CII National Award For Excellence In Water Management

A. Bajaj Auto
B. TVS Motor Company
C. Yamaha Motor Co.
D. Hero MotoCorp

ANSWER: D

9. In Which State Did Adani Group Collaborate For Data Centre And Aerospace Park Investment

A. Maharashtra
B. Karnataka
C. Telangana
D. Gujarat

ANSWER: C

10. Who Has Been Appointed As The Managing Director Of The National Asset Reconstruction Company

A. Ananya Singhania
B. Karthik Gupta
C. Uday Krishna
D. P Santhosh

ANSWER: D

11. Name Of Comprehensive Scheme Launched Under Ministry Of Earth Sciences

A. EARTHQUEST
B. PRITHVI
C. SCIENCEVISION
D. GEOEXPLORER

ANSWER: B

12. Which Indian state has launched Nation's first-ever Report and Meeting Management Portal

A. Karnataka
B. Maharashtra
C. Tamil Nadu
D. Himachal Pradesh

ANSWER: D

13. In Which State Is Adidas Establishing Its First And Only Global Capacity Centre

A. Maharashtra
B. Karnataka
C. Tamil Nadu
D. Gujarat

ANSWER: C

14. Which State/Union Territory Did Government Approve Formation Of A Draft Committee For Establishment Of A Madrasa Board

A. Ladakh
B. Himachal Pradesh
C. Punjab
D. Jammu and Kashmir

ANSWER: D

15. Which Country Has Taken A Digital Leap By Introducing Fully Digital Schengen Visas For The 2024 Olympics

A. Germany
B. France
C. Italy
D. Spain

ANSWER: B

16. Which Country Is Hosting The FIH Hockey5s World Cup Qualifiers

A. Oman
B. Argentina
C. Australia
D. Netherlands

ANSWER: A

17. Who Has Been Appointed As New Chairperson Of Federation Of Associations In Indian Tourism & Hospitality

A. Nakul Anand
B. Akash Saxena
C. Puneet Chhatwal
D. Priya Paul

ANSWER: C

18. Who Is Newly Appointed President Of European Investment Bank

A. Nadia Calvino
B. Werner Hoyer
C. Angela Merkel
D. Mario Draghi

ANSWER: A

19. Which Communication Satellite Is Set For Launch In The Historic Collaboration Between ISRO And SpaceX

A. GSAT-20
B. INSAT-4A
C. PSLV-C48
D. Cartosat-2E

ANSWER: A

20. Which State Houses The World's First Palm Leaf Manuscript Museum

A. Karnataka
B. Kerala
C. Tamil Nadu
D. Odisha

ANSWER: B