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1. A Bill empowering the Central Government to allow banks and other service providers to levy charges on digital payment systems, including the Unified Payments Interface (UPI), was passed by the Lok Sabha.
 - i. The Bill was introduced to amend the Payment and Settlement Systems Act, 2007. Due to continuous disruptions by the Opposition, it was passed by the Lok Sabha through a voice vote without any discussion.
 - ii. Section 10 of the Payment and Settlement Systems Act, 2007 prohibits banks from charging service fees on electronic transactions. The amendment empowers the Central Government to permit banks and other service providers to levy a small charge on electronic transactions, including UPI transactions, with the aim of ensuring a stable source of revenue for these institutions.
 - iii. Service charges are already levied on RTGS and NEFT transactions conducted through banking portals. However, UPI transactions currently do not attract any charges. Henceforth, service charges are also expected to be imposed on these transactions.
2. India successfully conducted a test of the Agni-4 ballistic missile.
 - i. According to a statement issued by the Ministry of Defence, the Agni-4 Intermediate-Range Ballistic Missile (IRBM) was successfully tested from a launch facility in the Chandipur area of Odisha. All operational and technical parameters were successfully validated. The missile accurately struck and destroyed the designated target.
 - ii. Developed by the Defence Research and Development Organisation (DRDO) under India's strategic missile development programme, the Agni-4 missile is capable of travelling up to 4,000 km and striking land-based targets.
 - iii. It is capable of carrying and delivering warheads weighing up to 1,000 kg, including nuclear warheads. The missile can be launched not only from roads but also from difficult terrains, making it strategically important. Agni-4 missiles already inducted into the armed forces are periodically tested to assess their operational effectiveness and readiness.

3. The first total solar eclipse of the current year will occur on Wednesday, August 12.

- i. When the Moon comes exactly between the Sun and the Earth, the entire visible disc of the Sun is blocked. As a result, the sky becomes dark during daytime, creating an atmosphere resembling dusk.
- ii. During this rare astronomical event, only the Sun's outer atmosphere, known as the 'corona', will appear as a bright white ring. Astronomy enthusiasts and photographers around the world are eagerly awaiting the opportunity to witness and capture this phenomenon.
- iii. However, the total solar eclipse will not be visible from any part of India. The path of totality will pass through Greenland, Iceland, Spain and parts of Portugal. In particular, the eclipse will occur around sunset in northern Spain, creating a spectacular sight of the Sun disappearing along the horizon, which is expected to attract tourists from around the world.
- iv. Tourists are also travelling in large numbers to witness this astronomical spectacle amid the glaciers and volcanic landscapes of Iceland and in the Arctic ice-covered regions of Greenland.

4. The Election Commission of Bangladesh has officially announced that the election to fill the vacant post of President will be held on the 20th of this month.

- i. The previous President, Mohammed Shahabuddin, suddenly resigned from his post last month, citing health reasons. Under the Constitution of Bangladesh, a new President must be elected within 90 days. Accordingly, Chief Election Commissioner A.M.M. Nasir Uddin announced the election schedule after consultations with the acting President and Speaker of Parliament, Hafiz Uddin Ahmed.
- ii. Under the Constitution of Bangladesh, the President is elected by members of Parliament through voting. However, the election process is conducted by the Election Commission. If only one candidate is nominated for the presidency by consensus, no voting will be held.
- iii. The Bangladesh Nationalist Party (BNP), which holds a two-thirds majority in the 350-member Parliament, has not yet announced its candidate for the presidential election.

5. The 'Daniel K. Inouye' Solar Telescope in Hawaii, USA, has captured the most precise image ever obtained of the surface of the Sun. Scientists state that the ripple-like patterns are caused by plasma movements and changes in magnetic fields.
6. Forest fire that has been spreading since Monday in the famous Bromo Tengger Semeru National Park on Indonesia's Java Island has destroyed approximately 148 acres of land.
7. In the St. Louis Rapid & Blitz Chess tournament being held in the United States, India's R. Praggnanandhaa is leading the Blitz section with three victories after nine rounds.
8. In Tamil Nadu, groundwater levels have continued to decline in most districts due to inadequate Southwest Monsoon rainfall. Coimbatore has recorded the maximum decline, with the groundwater level falling to a depth of 12.68 metres. According to a recent report released by the State Groundwater Monitoring Centre:
 - i. Compared with May, groundwater levels had declined further by the end of June in several districts. Coimbatore was the worst affected district, with the groundwater level recorded at a depth of 12.68 metres.
 - ii. This was followed by Tiruppur (9.44 m), Namakkal (8.51 m), Dindigul (8.18 m), Erode (7.97 m), Perambalur (7.57 m), Kallakurichi (7.48 m) and Tiruchirappalli (7.29 m), where groundwater levels have also declined.
 - iii. Similarly, groundwater levels in northern districts such as Chennai, Tiruvallur, Kancheepuram and Chengalpattu, as well as southern districts such as Kanniyakumari, Tirunelveli, Thoothukudi and Tenkasi, have declined compared with the previous year.
 - iv. However, groundwater levels in Dharmapuri, Salem, Kanniyakumari and Tiruppur increased by the end of June compared with May. Water Resources Department officials stated that inadequate Southwest Monsoon rainfall, excessive extraction of groundwater and insufficient water storage in water bodies were among the reasons for the decline in groundwater levels.
 - v. Officials also stated that the Government is continuously implementing various

schemes to improve groundwater levels.

9. The Union Government informed the Supreme Court that the 'creamy layer' principle does not apply to reservation for Scheduled Castes (SCs) and Scheduled Tribes (STs).

- i. The 'creamy layer' principle is followed in the case of Other Backward Classes (OBCs). The term 'creamy layer' refers to socially and economically advanced sections within the OBC category. In other words, it generally refers to families whose annual income exceeds the prescribed limit, currently ₹8 lakh. Such persons are excluded from the benefits of reservation in government education and employment.
- ii. In the 1992 Indra Sawhney case, also known as the Mandal Commission case, the Supreme Court upheld 27% reservation for backward classes. At the same time, it introduced the important principle that socially and economically advanced sections among the backward classes—the 'creamy layer'—should be excluded from reservation benefits.
- iii. A petition was filed in the Supreme Court seeking the introduction of the 'creamy layer' principle for SCs and STs as well, so that economically advanced persons among these communities could be excluded from reservation benefits. The Union Government filed its response in the case. It stated:
 - The petitioners had not identified any Fundamental Right under the Constitution that was violated in relation to reservation for SCs and STs.
 - The 'creamy layer' principle is applicable to reservation for OBCs and does not apply to SCs and STs. This was also clarified by a Constitution Bench of the Supreme Court in the case of Ashoka Kumar Thakur vs. Union of India.
 - Moreover, any such changes to the reservation policy, particularly the introduction of income-based criteria, should be made only after a comprehensive study of the socio-economic data of the beneficiaries. Since this is beyond the jurisdiction of the judiciary, the court cannot direct the executive to formulate a specific policy in this regard. Therefore, the Union Government urged the Supreme Court to dismiss the petitions seeking the introduction of the 'creamy layer' principle for SCs and STs.

10. The 'Uzhavar Artificial Intelligence (AI) Scheme' is to be introduced in Tamil Nadu to provide farmers with modern technological advice. The Agriculture Department stated in the Budget:

- i. Recognising that timely information for farmers is as valuable as timely rainfall, a long-term initiative has been announced to provide farmers with artificial intelligence-based technological facilities and deliver real-time information on soil health and crop cultivation.
- ii. Accordingly, technologies related to artificial intelligence and machine learning will be integrated to provide technological advice and services covering the entire agricultural cycle—from sowing to harvesting—including weather forecasting, soil health and fertility, disease management and selection of climate-suitable crops.
- iii. In addition, farmers will be able to easily access intelligent agricultural services through their mobile phones, including market information, voice-based agricultural services and details of government schemes. An allocation of ₹2 crore from the State funds will be made for implementing the 'Uzhavar AI Scheme' during 2026–2027.

11. The Agriculture Budget announced that a special scheme called the 'Wild Boar Damage Prevention Scheme' would be implemented at a cost of ₹7.35 crore to prevent crop losses caused by wild boars. The announcement stated:

- i. A special scheme costing ₹7.35 crore will be implemented to prevent crop losses caused by wild boars. *Prosopis juliflora* (Seemai Karuvelam) trees growing densely in certain areas provide habitats for wild boars.
- ii. Accordingly, ₹4 crore will be allocated for removing *Prosopis juliflora* trees from Government and private lands. To prevent crop damage not only from wild boars but also from other wild animals such as gaurs, elephants and deer, solar-powered electric fencing will be installed with subsidies for 134 farmers during the current year at a cost of ₹2 crore.
- iii. An environmentally friendly liquid wild-boar repellent developed by Tamil Nadu Agricultural University will be provided to farmers at a subsidised price. The scheme will be implemented across 14,000 acres with an allocation of ₹1.35 crore.

12. Tamil Nadu Agriculture Budget for the 2026–2027 fiscal year, presented by Agriculture and Farmers' Welfare Minister R. Vinoth.

(i) Budget Overview and Financial Allocation

- The budget for agriculture and 20 related sub-departments is set at ₹58,374 crore.
- This represents an increase of ₹12,713 crore over the previous year's allocation.

(ii) Core Objectives and Production Targets

- The budget prioritizes farmers' welfare, income growth, water resource augmentation, organic farming, and value addition for agricultural products.
- The state has set a target to produce 125 lakh metric tons of food grains annually over the next five years to ensure food security.
- Cultivation Expansion:
 - Pulses: Aiming to increase cultivation area from 15.19 lakh acres to 24.70 lakh acres.
 - Oilseeds: Aiming to increase cultivation area from 9.26 lakh acres to 14.89 lakh acres.

(iii) Subsidies and Financial Support for Farmers

- ₹7,432 crore is allocated to TANGEDCO to continue providing free and high-quality electricity to farmers.
- ₹648.55 crore is earmarked for the crop insurance scheme, expected to benefit 15 lakh farmers across 36 lakh acres.
- Under the Annal Ambedkar Agriculture Subsidy Scheme, ₹56.72 crore is allocated to provide a 20% additional subsidy for technical equipment and solar pumps to small and marginal SC/ST farmers.
- 100% subsidy will be provided to 300 SC/ST farmers without irrigation facilities to install borewells or tube wells equipped with solar or electric motors.

(iv) Soil Health and Organic Farming Initiatives

- The "Tamil Nadu Soil Health Protection Mission" is launched as a five-year project with an initial outlay of ₹600 crore.
- A new Organic Farming Diploma College named after the late scientist Nammazhvar will be established in Sadakkottai, Thanjavur district, with a total budget of ₹15 crore (₹5 crore allocated this year).

- ₹63.50 crore is allocated to provide a ₹3,000 per acre subsidy to farmers for using green manure to restore soil nutrients.

(v) Technological Innovation and Modernization

- An Artificial Intelligence project titled “Uzhavar AI” will be implemented at a cost of ₹2 crore to provide farmers with voice-based real-time information on soil health, seeds, and weather from sowing to harvest.
- ₹2.50 crore is allocated to train 100 women to operate drones for tasks like pesticide spraying, with a 50% subsidy offered for purchasing drones.
- Soil health cards will be distributed to 4 lakh farmers at a cost of ₹10.16 crore.

(vi) Horticulture and Infrastructure Development

- The “Vetri Illatharasi Home Garden Scheme” is launched with ₹10 crore to encourage organic vegetable and fruit cultivation in urban and rural households.
- ₹22.80 crore is allocated to build storage godowns with a 57,000 metric ton capacity to stabilize onion prices.
- ₹1.82 crore is earmarked to promote the cultivation of exotic fruits like Lychee, Dragon fruit, Avocado, and Mangosteen.
- A “Tamil Nadu Coconut Processing Corporation” will be established with ₹22.30 crore to ensure profitable prices for coconut products.

(vii) Environmental and Wildlife Challenges

- A special project to prevent crop damage by wild boars is launched with ₹7.35 crore.
- ₹2 crore is provided to install solar-powered electric fences for 134 farmers to protect crops from elephants and other wild animals.
- Special measures are planned for 12 districts expected to be impacted by “Super El Nino” weather patterns.

(viii) Farmer Recognition and Awards

The budget introduces several awards to encourage high-performing farmers:

- Anjalai Ammal Award: For small and marginal farmers achieving high yields in crops like millets and oilseeds, with prizes up to ₹2.5 lakh.
- Vetri Vivisayi Award: District-level awards for excellence in nine specific crops.
- Nammazhvar Award: For the best organic farmers, with five farmers receiving ₹2 lakh each and a certificate of appreciation.

(ix) Educational and Research Support

- Coimbatore Agriculture University: ₹3 crore is allocated (split between the state and the university) to purchase 6 new buses for student field trips.
- Hostel Modernization: ₹10 crore is earmarked for expanding and modernizing student hostels at the university.
- Food Processing Center: A modern Food Processing Technology Development Center will be established at the university at a cost of ₹2.62 crore.

13. Union Cabinet's approval of a major initiative to boost clean energy production from organic waste.

(i) Project Approval and Financial Outlay

- The Union Cabinet, chaired by Prime Minister Narendra Modi, approved the "GOBARdhan" (Galvanizing Organic Bio-Agro Resources Dhan) scheme.
- The project has been allocated a total outlay of ₹23,731 crore.
- The scheme is scheduled to be implemented over a 10-year period, spanning from the 2026–27 fiscal year to 2035–36.

(ii) Primary Objectives

- Accelerating the production of Compressed Bio-Gas (CBG) to strengthen India's transition toward clean energy.
- Lowering the nation's dependence on imported fossil fuels.
- Transforming agricultural and urban waste into valuable energy and organic fertilizer to boost rural income and national economic value.

(iii) CBG Blending Mandates

To ensure a stable market for biogas, the Government has introduced mandatory blending of CBG with Compressed Natural Gas (CNG) for vehicles and Piped Natural Gas (PNG) for domestic use:

- 2026–27: 3% mandatory blending.
- 2027–28: 4% mandatory blending.
- 2028–29: 5% mandatory blending.

(iv) Financial Incentives for Production

- The Government will provide financial support of up to ₹2 crore per ton of daily

production capacity for new qualifying CBG plants.

- Financial and technical support will also be extended to the expansion of existing biogas projects.
- The scheme focuses on utilizing diverse organic materials, including agricultural waste, cattle dung, sugar mill waste (press mud), and urban organic waste.

(v) Expected Impact and Production Targets

- The initiative aims for a 10-fold increase in the country's CBG production during the project period.
- By managing organic waste through anaerobic digestion, the project will significantly reduce methane emissions from landfills and open decomposition.
- The establishment of biogas plants in rural areas is expected to create jobs and provide farmers with an additional revenue stream from their waste.

The GOBARdhan project will serve as a critical pillar in India's future energy infrastructure, ensuring energy security through sustainable and self-reliant methods.

14. India's ambitious human spaceflight mission.

(i) Historical Context and Global Standing

- India's journey into space exploration began in 1975 with the launch of its first satellite, Aryabhata.
- The Gaganyaan mission is a progression from previous successful projects such as Chandrayaan, Mangalyaan, and Aditya-L1.
- Upon the successful completion of this mission, India will become the fourth country in the world—after the USA, Russia, and China—to send humans into space using its own indigenous technology.

(ii) Etymology and Symbolic Meaning

- The word "Gaganyaan" is derived from "Gagan," meaning sky or space, and "Yaan," meaning vehicle.
- It is described not merely as a spacecraft but as a testament to India's scientific capability and national pride on the global stage.

(iii) Core Mission Objectives

- The primary objective is to launch three Indian astronauts into space, maintain them in

orbit for three days, and ensure their safe return to Earth.

- The astronauts will be sent to a Low Earth Orbit (LEO) at an altitude of approximately 400 km.
- Gaganyaan serves as the foundation for establishing a Bharatiya Antariksh Station (Indian Space Station) by 2035 and future manned missions to the Moon.

(iv) Technical Specifications and Launch System

- The Gaganyaan spacecraft consists of two main parts:
 - Crew Module: The pressurized section where astronauts will reside during the journey, containing life support and communication systems.
 - Service Module: Provides necessary services such as electricity, propulsion, and thermal control.
- ISRO will use its most powerful rocket, the LVM-3 (Launch Vehicle Mark-3), which is an upgraded, "human-rated" version of the GSLV Mk-3 equipped with enhanced safety features.

(v) Safety and Life Support Systems

- A specialised Life Support System has been developed to provide oxygen, manage temperature, provide drinking water, and handle waste management in the vacuum of space.
- A critical safety feature designed to automatically separate the crew module from the rocket and carry the astronauts to safety in the event of an emergency during launch or flight.

(vi) Astronaut Selection and Training

- The selected astronauts are pilots from the Indian Air Force.
- The identified astronauts include Prashanth Balakrishnan, Angad Pratap, Ajit Krishnan, and S. Shukla.
- Their extensive training includes space environment simulation, weightlessness (microgravity) experience, emergency management, physical fitness, and mental preparation.
- While much training is domestic (Bengaluru), some specialized training was conducted at space centers in Russia.

(vi) Preparatory Testing and "Vyommitra"

- Before the manned mission, ISRO has planned unmanned test flights to verify safety and performance.
- The "Gaganyaan-1" mission (scheduled for late 2026) will carry a female humanoid robot named Vyommitra to monitor spacecraft parameters like radiation and vibration levels and to assist astronauts in future flights during emergencies.

(vii) Projected Timeline and Future Milestones

- The first crewed flight is currently planned for 2027.
- ISRO Chairman V. Narayanan stated that the Chandrayaan-4 mission, aimed at landing on the moon and bringing back samples, is planned for 2028.
- Despite an investment of thousands of crores, the mission is expected to catalyze growth in medicine, communication, and defense, while inspiring youth toward careers in science and engineering.

Gaganyaan is not just a flight into space, but a "Science Epic" that will write India's future in the stars.

15. Ecological necessity of river-to-ocean flow against the common political argument that such water is "wasted."

(i) The Misconception of "Wasted" Water

- Some politicians and social media commentators argue that allowing river water to flow into the sea is a waste.
- The Chief Minister of Karnataka recently criticized Tamil Nadu, claiming the state "wasted" water by letting it reach the sea instead of utilizing it during the previous year.
- The natural destiny of a freshwater river is to join the sea after serving the needs of the land it traverses.

(ii) The Hydrological and Nutrient Cycle

- Three-quarters of the Earth is covered by water; evaporation from the sea forms clouds, which move toward land due to air pressure changes, eventually resulting in monsoons and rain.
- Rain falling on slopes creates rivers that carry fertile silt (alluvial deposits) to delta regions, which are the primary centers for food production.
- The return of the river to the sea is part of a continuous "Nature's Cycle" that maintains

global environmental balance.

(iii) Consequences of Blocking River Flow

- A river remains "alive" only as long as it flows but completely obstructing its path effectively kills the river system.
- If freshwater flow to the sea is stopped, seawater will seep inland through groundwater for several kilometers.
- Saltwater seepage turns soil alkaline and unfit for agriculture, destroying both beneficial microorganisms and large-scale crops in coastal districts.

(iv) Preservation of Biodiversity

- The meeting point of a river and the sea (estuary) hosts a unique ecosystem of organisms that have adapted to live in both salt and fresh water.
- Millions of deep-sea organisms and coral reefs depend on the specific nutrients and minerals carried by river water into the ocean.
- Certain fish, such as Salmon, travel thousands of kilometers from the ocean into rivers to spawn; their offspring then return to the sea. Blocking river paths disrupts these ancient migratory patterns.

(v) Global Lessons and Warnings

- Deltas in Vietnam, Cambodia, Pakistan, Iraq, Uzbekistan, Iran, and the USA are examples where massive dams have blocked river water from reaching the sea, leading to catastrophic saltwater intrusion and significantly reduced agricultural yields.
- While ancestors built lakes and ponds to store water, they never intended to completely sever the river's connection to the sea.

(vi) Key River Statistics

Data on the massive volume of water naturally flowing into the Bay of Bengal annually from major Indian rivers:

- Godavari River: Approximately 2,850 TMC of water.
- Brahmaputra River: Approximately 22,000 TMC of water.

Nature is the ultimate teacher and human intervention that ignores these ecological cycles often results in self-inflicted environmental disasters.