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National and International News

<p>Kalam-250</p> 	<p>Context:</p> <ul style="list-style-type: none"> The recent successful test firing of Stage-2, named Kalam-250, of the Vikram-1 space launch vehicle by Skyroot Aerospace marks a significant advancement in India's space industry. Importance: Stage-2 is crucial in propelling the launch vehicle from the atmospheric phase to the deep vacuum of outer space, playing a pivotal role in achieving the desired trajectory. <p>Key points:</p> <ul style="list-style-type: none"> Kalam-250 is a high-strength carbon composite rocket motor using solid fuel. It features a high-performance Ethylene-Propylene-Diene terpolymers (EPDM) Thermal Protection System (TPS). The stage-2 includes a carbon ablative flex nozzle and high-precision electro-mechanical actuators for thrust vector control, ensuring precise trajectory adjustments. The solid propellant for Kalam-250 was processed by Solar Industries at their Nagpur facility. The successful test firing brings Skyroot Aerospace closer to the upcoming orbital launch of the Vikram-1 rocket. <p>Vikram I Details</p> <ul style="list-style-type: none"> Vikram I is the first rocket in the series, featuring three solid-fuel-powered stages and a final stage equipped with Raman engines. The Raman engines, powered by MMH and NTO liquid fuels, are used for final orbit adjustments. Vikram I is designed to lift payloads of up to 290 kg to a 500 km Sun synchronous polar orbit (SSPO) or 480 kg to a 500 km low Earth orbit (LEO) with a 45° inclination.
<p>Asteroid 2015 MB54</p>	<p>Context:</p> <ul style="list-style-type: none"> NASA has been tracking a massive 170-foot asteroid(Asteroid 2015 MB54) that is moving towards Earth at a speed of 13,798 kilometers per hour. On March 29, NASA's Jet Propulsion Laboratory predicted the passage of four asteroids near Earth. Monitoring celestial objects is crucial to protect



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Earth from potential impacts and damage.

Key points:

- NASA reassures that Asteroid 2015 MB54 poses no threat to Earth due to its relatively small stature.
- According to **NASA's criteria**, only asteroids **approaching within 4.6 million miles** and measuring larger than approximately 150 meters are considered **potentially hazardous**.

Asteroids:

- Asteroids, also known as **minor planets**, are **rocky remnants from the early stages** of the solar system's formation around **4.6 billion years ago**.
- These space rocks are primarily located in the **main asteroid belt, a region between Mars and Jupiter, and their total count exceeds 1,351,400**.
- These celestial objects vary **greatly in size**, with the largest asteroid, **Vesta, measuring about 329 miles (530 kilometers) in diameter**, while the smallest are less than 33 feet (10 meters) across. Their shapes range from nearly spherical to irregular double-lobed peanut shapes.
- Asteroids **follow highly elliptical orbits around the Sun**, often rotating unpredictably and tumbling through space.
- Despite their abundance, the combined mass of all asteroids is less than that of **Earth's Moon**. Interestingly, many large asteroids have small moons orbiting them.

USSD

Context:

- The **Department of Telecom (DoT)** has issued a directive to telecom operators regarding the deactivation of **USSD-based call forwarding services, effective from April 15, to prevent fraud and online crimes**.

Key points:

- **USSD (Unstructured Supplementary Service Data)** is a protocol used by GSM cellular telephones to communicate with service provider computers.
- It allows users to interact with various services using short codes, initiating a session between the user's phone and the service provider's system.

Reasoning and Impact:

- The directive aims to prevent fraud and enhance security for subscribers by suspending USSD-based call forwarding services.



	<ul style="list-style-type: none"> • Telecom operators can mitigate risks associated with fraudulent activities.
<p>Plastic Waste Management Amendment Rules 2024</p>	<p>Context:</p> <ul style="list-style-type: none"> • The Union Environment Ministry has recently introduced stricter rules to regulate "biodegradable" plastics in response to the growing concern over microplastic pollution. • These rules aim to ensure that the environmental impact of disposable plastic ware is accurately communicated through labelling. <p>Key points:</p> <ul style="list-style-type: none"> • Biodegradable plastics were initially seen as a solution to plastic waste, as they were expected to decompose naturally after use, reducing plastic accumulation in landfills and the environment. • However, previous regulations in India lacked clear definitions for "biodegradable," leading to incomplete breakdowns and the potential for microplastics to remain. • The new rules require complete biodegradation, with no microplastics left behind, representing a significant step towards preventing further plastic waste pollution. <p>Microplastics:</p> <ul style="list-style-type: none"> • Microplastics are small plastic pieces less than five millimeters long which can be harmful to our ocean and aquatic life.
<p>India's Defence Exports Reach Record High</p>	<p>Context:</p> <ul style="list-style-type: none"> • India's defence exports exceeded ₹21,000 crore for the first time. <p>Key points:</p> <ul style="list-style-type: none"> • The Defence Ministry reported a 31-fold increase in exports over the past decade compared to FY 2013-14. • Mr. Singh expressed his delight, highlighting the significant milestone in India's defence exports. • The exports reached ₹21,083 crore in FY 2023-24, marking a remarkable 32.5% growth from the previous fiscal year.

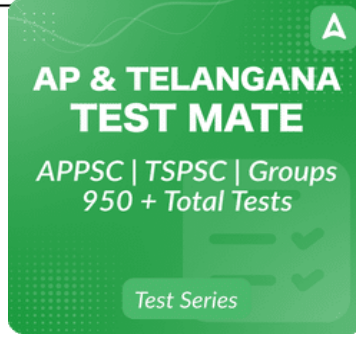


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