8. Short News

1. Magnetic Levitation (Maglev)

China set a world record by accelerating a superconducting maglev vehicle to 700 km/h in just two seconds. A technology where objects are suspended and propelled by magnetic forces, removing friction and physical contact.

Levitation- Uses strong magnetic fields to counteract gravity.

Types

1. Electromagnetic Suspension (EMS)- Uses attractive magnetic forces.
2. Electrodynamic Suspension (EDS)- Uses repulsive forces generated by superconducting magnets to lift and stabilize the vehicle.
3. Propulsion- Linear motors guide and push the vehicle along the track.

Key Components

Superconducting Magnets- Create very high fields but need extreme cooling (used in industry/research).

Permanent Magnets- Used for compact, commercial applications (e.g., Nd-Fe-B magnets).

Applications- High-speed trains (low friction, high speed). Magnetic refrigeration and precision industrial equipment. Future tech like Hyperloop and assisted aerospace launches.

2. Pinaka Multiple Rocket Launch System (MRLS)

DRDO successfully tested the 120-km Long-Range Guided Rocket (LRGR-120), boosting India's artillery capabilities.

Developer- Indigenously developed by DRDO's Armament Research and Development Establishment (ARDE).

History- First deployed effectively during the Kargil War.

Key Features

Firepower- One launcher holds 12 rockets; a battery of 6 launchers can fire 72 rockets rapidly.

Range- Standard- 60–75 km.

New Guided Variant (LRGR-120)- Extended range of 120 km.

Mobility- Mounted on Tatra trucks for all-terrain movement.

Significance- Validates India's deep-strike capability, reduces import dependence, and increases export potential.

3. Indian Economy- Vision 2047

An EY report projects India will become a US$26 trillion economy by 2047–48.

Growth Projections- Expected to be the fastest-growing major economy (approx. 6% annual growth). Projected to become the 3rd largest economy by 2030 (overtaking Japan and Germany).

Key Drivers

Services- Strong growth in IT and BPO; India hosts ~45% of global Global Capability Centres (GCCs).

Digital- High internet penetration and robust Digital Public Infrastructure.

Viksit Bharat Targets (2047)

1. GDP Goal- ~US$30 trillion.
2. Income- Per capita income to rise to US$18,000 (approx. 6x current levels).
3. Energy- 40-fold increase in clean energy; 10-fold increase in nuclear capacity.

4. INSV Kaundinya

Event- Mailed on its first overseas voyage from Gujarat to Oman.

Design- A stitched sail ship (no nails used), based on a 5th-century CE design found in Ajanta Cave paintings.

Name- Named after Kaundinya, an ancient Indian mariner.

Goal- To retrace ancient maritime routes and revive indigenous shipbuilding knowledge.

Significance- Aims to strengthen cultural and diplomatic ties between India and Oman.

5. New BIS Standard for Incense Sticks (Agarbatti)

New Standard- IS 19412-2025 released by the Bureau of Indian Standards (BIS).
Classification- Divides agarbattis into machine-made, hand-made, and traditional masala types.
Prohibitions- Bans specific toxic insecticides (e.g., Alethrin, Permethrin) and synthetic chemicals (e.g., Benzyl cyanide) to ensure safety.
Industry Fact- India is the world's largest producer of agarbattis (₹8,000 crore industry).

6. Pinaka Long Range Guided Rocket (LRGR-120)

Event- Successful maiden flight test at Integrated Test Range (ITR), Odisha.
Range- Maximum strike range of around 120 km (denoted by the "120" in its name).
Type- An extended-range, precision-guided rocket for the Pinaka Multiple Launch Rocket System (MLRS).
Status- Cleared for induction into the Indian Army; also, a key defense export product (procured by Armenia).

7. Lambda-Cold Dark Matter (LCDM) & Universe Expansion

New Study- Research from Yonsei University suggests the universe's expansion might be slowing down, challenging the standard theory of acceleration.
Standard Theory (ΛCDM Model)- Suggests the universe is expanding at an accelerating rate due to Dark Energy.

1. Dark Energy (~68%)- A repulsive force driving expansion.
2. Dark Matter (~27%)- An attractive force holding galaxies together; interacts only via gravity.
3. Normal Matter (<5%)- Everything visible (stars, planets, gas).
4. Hypothesis- The study proposes that Dark Energy might be weakening, acting as a "brake" on expansion.