

October - 24

TNPSC BITS

- ❖ The Silicon Photonics Research Centre of Excellence (SPRCE) has been launched in Indian Institute of Technology Madras (IIT-M).
- ❖ Indian chess grandmaster Karthikeyan Murali has defeated world top-ranked player Magnus Carlsen (Norway) in the Qatar Masters.
- ❖ The Central Bureau of Investigation (CBI), conducted the 'Chakra-II' operation to curb cyber-enabled financial fraud.
- ❖ The union Cabinet approved Green Energy Corridor Phase-II – Inter-State Transmission System for 13-gigawatt renewable energy project in Ladakh.
- ❖ The Indian Council of Medical Research (ICMR) successfully transported more than 100 units of essential medications for 20 kilometres in Lahaul and Spiti district using drone.
- ❖ The Bureau of Indian Standards (BIS) has approved the world's first ever indigenously developed AC and DC combined charging connector standard for light electric vehicles (LEVs).
- ❖ Karnataka Chief Minister unveiled the emblem of Karnataka Sambhrama-50 to mark the golden jubilee of renaming the Mysore State as Karnataka on November 1, 1973.
- ❖ India and the UK's maiden 2+2 foreign affairs and defence dialogue was held in New Delhi.
- ❖ The European Union has awarded the Sakharov Prize for Freedom of Thought to Mahsa Amini, who died shortly after Iranian authorities arrested her last year.
- ❖ The Institute of Chartered Accountants of India's (ICAI) has bagged a prestigious International Standards for Accounting and Reporting (ISAR) Award, for its contribution to sustainability reporting.
- ❖ As per the recent statements of government, India aims to send an astronaut to the Moon by 2040 and planning for a space station by 2035.
- ❖ Google India has launched its flagship program, DigiKavach, an early threat detection and warning system, designed to identify and study emerging financial fraud patterns.

INTERNATIONAL

China's Nuclear Arsenal Buildup

- ❖ A Pentagon report on China's military power says Beijing is exceeding previous projections of how quickly it is building up its nuclear weapons arsenal.

- ❖ China may be pursuing a new intercontinental missile system using conventional arms.
- ❖ Last year's report warned that Beijing was rapidly modernizing its nuclear force and was on track to nearly quadruple the number of warheads it has to 1,500 by 2035.
- ❖ The 2023 report finds that Beijing is on pace to field more than 1,000 nuclear warheads by 2030.
- ❖ The United States has 3,750 active nuclear warheads.
- ❖ China's military spending for 2023 rose 7.2% to 1.58 trillion yuan, or \$216 billion in U.S. dollars.



UN Bonn summit 2023

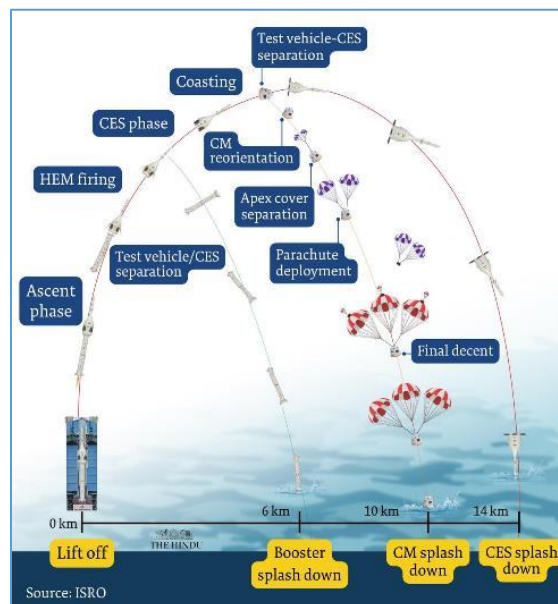
- ❖ United Nations (UN) Conference in the German city of Bonn adopted a new global framework to reduce environmental risks from chemicals and waste.
- ❖ Countries also committed to phase out the most harmful chemicals at the fifth International Conference on Chemicals Management or ICCM5.
- ❖ The Global Framework on Chemicals sets concrete targets and guidelines across the lifecycle of chemicals.
- ❖ The framework is based around 28 targets, designed to improve responsible management of chemicals and waste.

- ❖ National governments committed to formulating policies and regulations in order to reduce chemical pollution by 2030 as well as promoting safer alternatives.
- ❖ Industries also pledged to manage chemicals in order to reduce pollution and its adverse impacts.
- ❖ The aim of the framework is to phase out lethal agricultural pesticides by 2035.



SCIENCE AND TECHNOLOGY

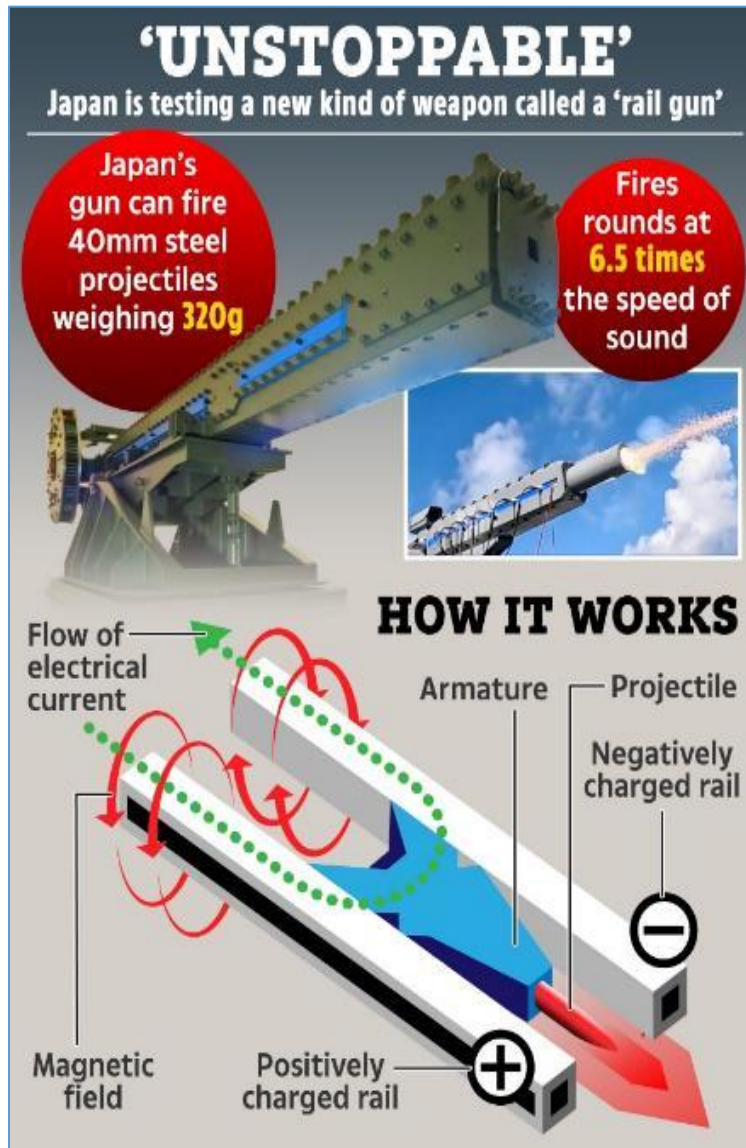
Gaganyaan TV-D1 Mission



- ❖ Gaganyaan's first Flight Test Vehicle Abort Mission-1 (TV-D1) was successfully accomplished by ISRO.

- ❖ The TV-D1 flight was aims to demonstrate the performance of the Crew Escape System (CES).
- ❖ The Crew Escape System took the crew module away from the vehicle, and subsequent operations, including the touch-down at sea.

Electromagnetic Railgun



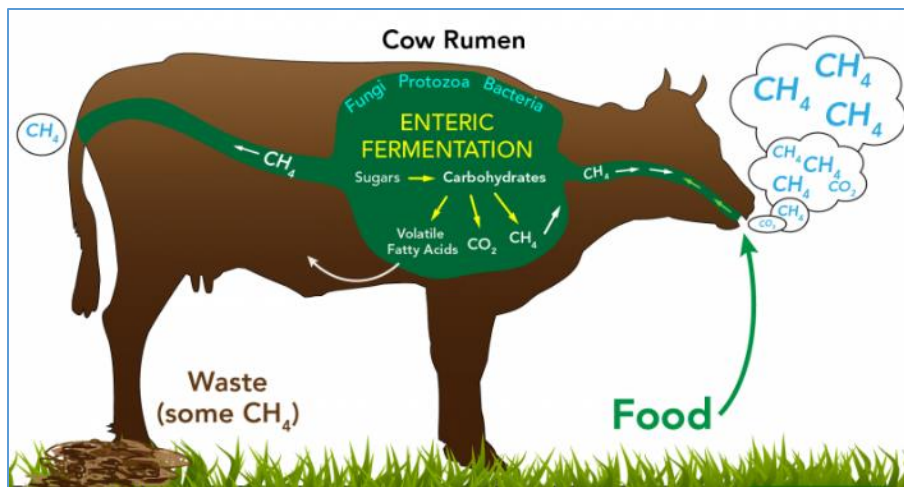
- ❖ Japan has successfully test-fired a world's first medium-caliber maritime electromagnetic railgun from an offshore platform.
- ❖ A railgun is an electromagnetic weapon that can shoot projectiles at about Mach 7, or seven times the speed of sound.

- ❖ This can attack on targets like ships, missiles, and aircraft.

ENVIRONMENT

Livestock methane emissions

- ❖ About 32 per cent of global anthropogenic methane emissions result from microbial processes that occur during the enteric fermentation of ruminant livestock and manure management systems.
- ❖ Another 8 per cent comes from rice paddies.
- ❖ Methane is a short-lived greenhouse gas (GHG), which has an atmospheric lifetime of around a decade.
- ❖ Another GHG Carbon dioxide, affects the climate for hundreds of years.
- ❖ But methane is more than 25 times as potent as carbon dioxide at trapping heat in the atmosphere.



STATES

Kasaragod district – Kerala

- ❖ Kasaragod district has become the first district in India to officially designate its own tree, flower, bird and species.
- ❖ The decision is a testament to the region's rich biodiversity and natural heritage.
- ❖ The official tree of the district is 'Kanjiram' (Strychnos nux-vomica Linn).
- ❖ The district bird is the White Bellied Sea Hawk, which is native to the region.
- ❖ Kasaragod has also chosen the Cantor's Giant Softshell Turtle, locally known as 'Bheemanama', as the district species.

- ❖ The district flower is 'Periya Polathali' or *Crinum malabarica*.



Coral Reef Fossils in Ladakh



- ❖ Geologist has unearthed coral reef fossils at 18,000 feet above sea level at Burtse in the Eastern Ladakh Himalayas.
- ❖ The unearthed fossils include structures of coral colonies, and give a glimpse into Burtse area's geological past which comprised of an ancient underwater world.
- ❖ The findings are indicative of a biodiversity that once existed in the said region.

- ❖ Coral reef, an underwater ecosystem comprising of colonies of corals, held together by a building of calcium carbonate.

IMPORTANT DAYS

International Chef's Day 2023 - October 20

- ❖ This day encourages people to understand the importance of a chef in their lives and that cooking is an essential skill.
- ❖ Dr Bill Gallagher, a former president of the World Association of Chefs Societies (Worldchefs), founded this Day in 2004.
- ❖ This year's theme is 'Growing Great Chefs'.



International Stuttering Awareness Day 2023 - October 22



- ❖ Stuttering is a disruption in speech pattern involving dysfluencies in a person's speech.

- ❖ The International Stuttering Association (ISA) officially launched in 1998.
- ❖ The theme for this year is “One Size Does NOT Fit All”.







Mole Day 2023 - October 23

- ❖ It is celebrated every year on 23 October from 6:02 a.m. to 6:02 p.m.
- ❖ It commemorates chemistry’s measuring unit called “Avogadro’s Number” (6.02×10^{23}).
- ❖ In general, one mole of any substance contains Avogadro's Number of molecules or atoms of that substance.
- ❖ This relationship was first discovered by Amedeo Avogadro (1776-1858).

602,214,076,000,000,000,000,000
The number of atoms, molecules or ions in one mole of a substance

Atoms, molecules and ions are very small and impossible for chemists to count. Using the mole makes it easier to talk about amounts of substances involved in reactions, by relating the mass of a substance to its atomic or molecular mass.

Amount of substance = mass (g) ÷ mass of 1 mole (g mol⁻¹)

 H ₂ O 18.0 g	 Fe 55.9 g	 O ₂ 32.0 g	 NaCl 58.4 g	 Au 197 g	 He 4.00 g
Water	Iron	Oxygen	Table salt	Gold	Helium

One mole contains a different mass for different substances
This makes sense if you think about it. Different substances will have atoms, molecules or ions which have different masses. Gold atoms have a greater mass than iron atoms, so the mass contained in one mole of gold atoms is greater.

