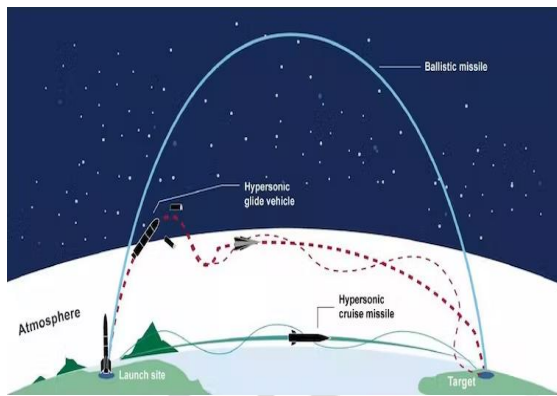


Hypersonic missiles

- An Iranian Revolutionary Guards General claimed that the Islamic republic has developed a hypersonic missile capable of penetrating all defense systems,
- Hypersonic missiles, like traditional ballistic missiles which can deliver nuclear weapons, can fly more than five times the speed of sound.



- Describing a vehicle as hypersonic means that it flies much faster than the speed of sound, which is 761 miles per hour (1,225 kilometers per hour) at sea level and 663 mph (1,067 kph) at 35,000 feet (10,668 meters)

Three types of hypersonic missiles

- There are three different types of non-ICBM hypersonic weapons: aero-ballistic, glide vehicles and cruise missiles.
- A hypersonic aero-ballistic system is dropped from an aircraft, accelerated to hypersonic speed using a rocket, and then follows a

ballistic, meaning unpowered, trajectory.

- A hypersonic glide vehicle is boosted on a rocket to a high altitude and then glides to its target, manoeuvring along the way.
- A hypersonic cruise missile is boosted by a rocket to hypersonic speed and then uses an air-breathing engine called a scramjet to sustain that speed.
- Because they ingest air into their engines, hypersonic cruise missiles require smaller launch rockets than hypersonic glide vehicles, which means they can cost less and be launched from more places.

THE HINDU

CAD

- State Bank of India has pencilled in a lower current account deficit for India at 3% for this fiscal as against the minimum consensus of 3.5%, citing rising software exports, remittances, and a likely \$5-billion jump in forex reserves via swap deals
- Software exports have been rising with the share of offsite mode of exports by domestic IT services firms soaring to 88.8% in FY22 from 82.8% five years earlier.
- Current Account Deficit (CAD) is the shortfall between the money

received by selling products to other countries and the money spent to buy goods and services from other nations.

- If the value of goods and services we import exceeds the value of those we export, the country is said to be in a deficit, and the difference in the two values is CAD.
- The current account includes net income, including interest and dividends, and transfers, like foreign aid.
- India's current account position is largely on the deficit side because of the country's dependence on oil imports.

THE HINDU

FMCG industry

- The country's FMCG industry continued to witness consumption slowdown in the September quarter, with rural markets registering a higher decline in volumes consumers continued to prefer purchasing smaller packets amid companies hiking prices in response to broader inflationary pressures.

What are FMCG Goods?

- Fast-moving consumer goods, also known as consumer packaged

goods, are products that are sold quickly and at a relatively low cost.

- Examples include non-durable household goods such as packaged foods, beverages, toiletries, candies, cosmetics, over-the-counter drugs, dry goods, and other consumables.

THE HINDU

Kherson region

Where is Kherson and why is it important?

- Geographically, Kherson is a strategic location for Russia and Ukraine.
- Situated in the northwest of the Dnipro River, the province shares borders with Donetsk, Crimea, and the Black Sea.
- With Moscow capturing Crimea in 2014, the occupation of Kherson in March 2022 has benefited Russia in transferring its military from Crimea to counter Ukraine.



- It provides access to Odesa and Black Sea ports in the west and serves as

the main route to secure southern Ukraine.

- For Ukraine, regaining Kherson is significant to protect its population in Kalanchak and Chaplynka districts and also to recapture Crimea.
- Kherson is also an important region for its agricultural produce, with irrigation channels.

Why has Moscow announced its withdrawal from Kherson?

- There are three reasons behind the move. First is the mobilization failure.
- When Russia was advancing rapidly in capturing the southern and northern cities of Ukraine, its military personnel and weapon systems started to run thin.
- Secondly, the inability of Russia to govern Kherson
- Third, Ukraine's expanding counter-offensive

A layoff from a big tech firm

- Several large technology firms have already paused hiring and, in some cases, companies are laying off employees.
- Social media platforms like Meta and Snap have been hit by an update from Apple.

- The iPhone maker introduced an app tracking feature that lets users opt out of apps that track them.
- Higher inventory for chip makers, lower demand for handset manufacturers, loss in revenue from selling ad spaces for social platforms, and uncertain long-term bets like the metaverse have played a significant role in making large tech firms restructure their business practices.

THE HINDU

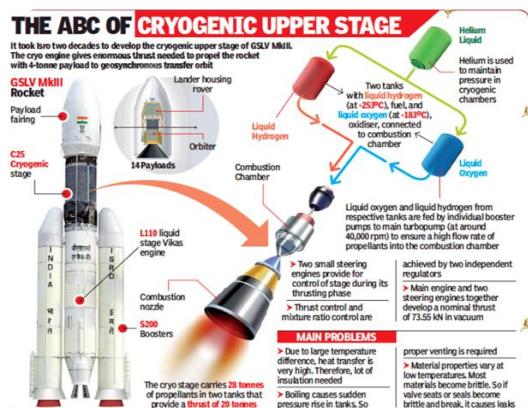
LVM3- Hot test vs cold test

- The Indian Space Research Organisation (ISRO) has successfully conducted the hot test of the CE20 cryogenic engine, which has been indigenously developed for Launch Vehicle Mark-3 (LVM3), previously called the GSLV-Mk3
- CE20 cryogenic engine is indigenously developed for LVM3.
- The LVM3 is the heaviest launch vehicle of ISRO.

Hot test vs cold test

- A hot test system is a 100% production test used to check all the engine operating parameters as they would function real time in an actual vehicle
- Whereas a cold test consists of a leak test, which includes the testing of all

cavities and systems that must not leak, such as oil, water, fuel, and air.



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About LVM3

- While the LVM3 was named the GSLV Mk III, it features a suite of improved systems and components over the GSLV Mk II.
- As a result, the rocket is considered to be in a league of its own, apart from the trusty Polar Satellite Launch Vehicle (PSLV) and the GSLV.
- The LVM3 is capable of lifting much heavier satellites than the GSLV Mk II with a bigger cryogenic upper stage and a larger first stage.
- Both GSLV Mk II and LVM3 are three-stage vehicles, while the PSLV, which launches to low earth polar orbits, is a four-stage vehicle.
- The GSLV Mk-II can place up to 2,500kg in geosynchronous orbits and up to 5,000kg to low earth orbits.
- By comparison, the LVM3 can lift 4,000kg to GTO and up to 8,000 kg to LEO.

- Currently, SpaceX's non-human rated Falcon Heavy, a super-heavy lift vehicle, is the heaviest rocket that is operational, only surpassed by the retired Saturn V, which launched Apollo astronauts to the moon.
- The LVM3 also has the human-rated variant which will be used for Gaganyaan missions.

THE HINDU