UPSC Daily Current Affairs | Prelim Bits 15-06-2024

Olympus Mons

European Space Agency (ESA)'s Mars Express have recently discovered frost at the top of Olympus Mons on Mars.

> *The presence of frost suggests that water vapor is moving through the Martian atmosphere and condensing in specific regions.*

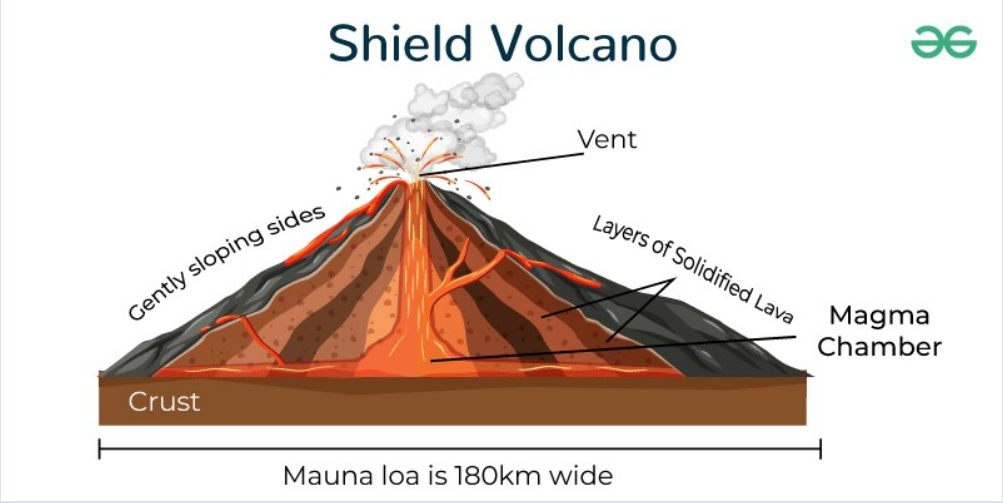
> *Mars Express is Europe's first mission to the Red Planet.*

- Olympus Mons is an immense ***shield volcano*** located on ***Mars.***
- **Discovered by –** It is first identified by NASA's Mariner 9 spacecraft in 1971.
- It is the ***tallest volcano*** in the solar system, located on Mars. (Two and a half times taller than Mount Everest).
- It is a large ***shield volcano*** on Mars and the largest volcano in the entire Solar System.
- It is associated with the volcanic region of ***Tharsis Montes***.

> *Tharsis is a vast volcanic plateau centered near the equator in the western hemisphere of Mars.*

Shield volcano

• It is an active volcano with a caldera that tends to erupt basalt lava. They are the largest volcanoes on Earth.
• Shield volcanoes broad volcanoes with gentle slopes and are shaped somewhat like a warrior's shield lying flat on the Earth.
• In this type, a volcano produces low viscosity, runny lava, it spreads far from the source and forms a volcano with gentle slopes.
• **Examples –** Mauna Kea, Mauna Loa and Kilauea.



References

1. India today | Olympus Mons
2. ESA|Mars Express overview

Kavli Prize

Recently, the 2024 Kavli Prize winners were announced.

- **About-** It is a ***biennial award*** introduced in 2008 to honour exceptional achievements in ***astrophysics, neuroscience, and nanoscience.***

  The Kavli Medal is awarded annually for excellence in all fields of science and engineering relevant to the environment.

- **Awarded by –**Norwegian Academy of Science and Letters in partnership with the Norwegian Ministry of Education and Research.
- **Objective-** To recognize
  - Outstanding scientific research,
  - Honor highly creative scientists,
  - Promote public understanding of scientists and their work, and
  - Foster international cooperation among scientists.
- The Kavli Prize is named after Norwegian-American businessman and philanthropist, Fred Kavli.
- **Prize**- It comprises a ***$1 million cash prize*** (per field), a scroll, and a medal.

Awardees, 2024

Field	Purpose
Astrophysics	• **Winner-** David Charbonneau and Sara Seager. • **Contribution-** Recognised for discoveries of exoplanets, and the characterisation of their atmosphere.
Nanoscience	• **Winner-** Robert Langer, Armand Paul Alivisatos, Chad Mirkin. • **Contribution-** For breakthroughs in nanoscience for ***biomedical applications.***
Neuroscience	• **Winner-** Nancy Kanwisher, Winrich Freiwald, Doris Tsao. • **Contribution-** For their collective effort over decades *to map the linkage between* ***facial recognition and the brain.***

Reference

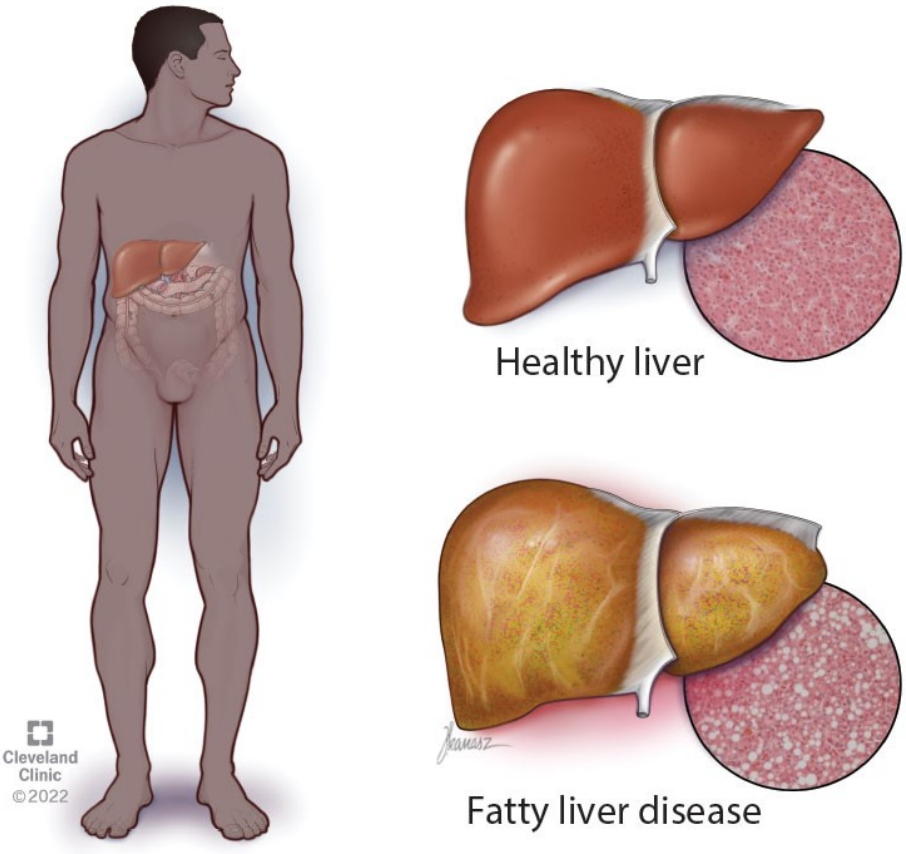
1. Indian Express | Kavli Prize
2. Avliprize | About

Metabolic dysfunction-associated steatotic liver disease (MASLD)

International Fatty Liver Day, 2024 is celebrated recently.

- **About -** MASLD is a chronic liver disease that occurs when fat builds up in the liver and a person has at least one metabolic risk factor.
- It is also known as non-alcoholic fatty liver disease (NAFLD).

Non-Alcoholic Fatty Liver Disease



- **Prevalence** - It is the most common cause of chronic liver disease and a leading cause of liver-related deaths and illnesses.

  MASLD affects up to 25% of people worldwide, while MASH affects 25-30% of the population.

- **Symptoms -** People typically don't experience symptoms until MASLD progresses to ***MASH (metabolic dysfunction-associated steatohepatitis).***
- **MASH -** When fat leads to inflammation and cell damage in your liver, it is called steatohepatitis.
- The non-alcohol related version is called Metabolic Dysfunction-Associated Steatohepatitis (MASH), previously, known as non-alcohol related steatohepatitis (NASH).
- **Other causing factors -** Factors that can cause this condition other than alcoholic consumption were Metabolic syndrome, Diet and nutritional causes, Genetics.
- **Treatment –** There is no medicine yet to reverse steatotic (fatty) liver disease, making changes to what you eat, how much you drink and increasing your activity levels can help.
- **Vulnerables -** It can affect anyone, including all ages and races, more common in people of ***Hispanic descent*** and less common in Black people.
- **Fatty liver cases in India -** In India, the prevalence is high, with around *38.6% among adults* and approximately *36% among obese children, as of 2022.*

International Fatty Liver Day

- International Fatty Liver Day is a global initiative observed every year on the ***2nd Thursday of June,*** formerly known as International NASH Day.
- **Launched by** - The initiative was first launched by the ***Global Liver Institute (GLI)*** in 2018.
- **Theme, 2024** – 'Act Now, Screen Today'.
- **Objective-** It aims to educate people about the risks, prevention, and management of fatty liver conditions.

Reference

The Hindu | Metabolic dysfunction-associated steatotic liver disease

Iskander-M missile

Russia reportedly targeted the Ukrainian military airbase using the nuclear-capable Iskander-M missile system.

- **About-** It is a ***road-mobile short-range*** ballistic missile system developed by Russia.
- It was Codenamed ***"SS-26 Stone"*** by NATO.
- Iskander is designed for tactical strikes on small, high value land targets.

The North Atlantic Treaty Organization (NATO) is an intergovernmental military alliance based on the North Atlantic Treaty.

- **Induction-** It was inducted by Russia in 2006.
- **Size-** It is ***7.3 meters long, 0.92 meters*** in diameter
- **Propulsion -** Single-stage solid propellant.
- **Range-** 500 km
- **Payload -** It can carry a payload of up to 700 kg.
- **Warheads-** It can carry both ***conventional and nuclear warheads.***
- **Speed-** Seven times the speed of sound (Mach 7).
- **MaRV-** It employs a Maneuverable Reentry Vehicle (MaRV) and decoys to defeat theatre.

A maneuverable re-entry vehicle (MaRV) is a type of warhead designed to be carried by ballistic missiles.

- **Variants**
  - **Iskander-E** -has a range of 280 km with a reduced 480 kg payload.
  - **Iskander-K-** a new cruise missile R-500, range: 280 km max.

Reference

Times of India|Iskander-M missile

Mercy petition

The mercy petition of Pakistani terrorist convicted in the Red Fort attack case has been rejected by President of India.

- **About –** It is a plea made by a convict to the President or governor for some leniency in the capital punishment.
- It is the last resort available to the convict and is exercised when all legal remedies exhaust.
- To seek a mercy petition, the death sentence by the Session Court must be confirmed by the High Court.
- The convict who has been given a death sentence can appeal to the Supreme Court.
- If the Supreme Court refuses to hear the appeal or upholds the death sentence, it can be submitted to the President or Governor.
- The convict can file the mercy petition within ***7 days*** after the date on which the jail superintendent informs him of the dismissal of the appeal or special leave petition from the Supreme Court.
- It is available in ***USA, UK, Canada and India.***

Constitutional Provisions

- **Article 21 –** It guarantees the *right to life and personal liberty.*
- **Pardoning power of president (Article 72) -** It empowers the President to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence –
    - In all cases where the punishment or sentence is by a Court Martial.
    - In all cases where the punishment or sentence is for an offence against any law relating to a matter to which the executive power of the Union extends.
    - In all cases where the sentence is a sentence of death.
- **Pardoning power of Governor (Article 161) -** It empower the governors with the power to grant pardons, reprieves, respites, or remissions of punishment or to suspend, remit, or commute the sentence of any person convicted of any offence.
- **President vs Governor -** The scope of the pardoning power of the President is wider than the pardoning power of the Governor.

President	Governor
He can pardon a death sentence	He cannot pardon a death sentence
He can pardon in court martial	He cannot pardon in court martial

- There is ***no time limit*** given for mercy plea.
- There is ***no binding effect*** on the President and Governor to accept all the mercy petitions.

Reference

[The Indian Express | Mercy petition]