

COORDINATED LUNAR TIME (LTC)

Recently, the US White House officially directed the National Aeronautics and Space Administration (NASA) to create a time standard for the Moon, which different international bodies and private companies can use to coordinate their activities on the lunar surface.



- It will provide a **time-keeping benchmark** for lunar spacecraft and satellites that require extreme precision for their missions.
- It will also **synchronise** the communication between satellites, astronauts, bases and the Earth.
- A unified time standard would be essential for coordinating operations, ensuring the reliability of transactions and managing the logistics of lunar commerce.
- **Why there is need of LTC?**
 - As there is less gravity on the Moon, time **ticks slightly faster** there relative to the time on the Earth.
 - In other words, for someone on the Moon, an Earth-based clock will appear to lose on average 58.7 microseconds per Earth day with “additional periodic variations”.
 - It can **create problems** for situations such as a spacecraft seeking to dock on the Moon, **data transferring** at a specific time, **communication, and navigation**.

How does Earth’s time standard work?

- Most of the clocks and time zones of the world are based on **Coordinated Universal Time (UTC)** which is essentially internationally agreed upon standard for world time.
- It is set by the **International Bureau of Weights and Measures** in Paris, France.
- It is tracked by a weighted average of more than 400 atomic clocks placed in different parts of the globe.

- **Atomic clocks** measure time in terms of the **resonant frequencies** — the natural frequency of an object where it tends to vibrate at a higher amplitude — of atoms such as **cesium-133**.
 - In atomic time, a second is defined as the period in which a caesium atom vibrates 9,192,631,770 times. As the vibration rates at which atoms absorb energy are highly stable and ultra-accurate, atomic clocks make for an excellent device for gauging the passage of time.
 - To obtain their local time, countries need to subtract or add a certain number of hours from UTC depending on how many time zones they are away **from 0 degree longitude meridian**, also known as the Greenwich meridian.
 - If a country lies on the **west of the Greenwich meridian**, it has to **subtract** from the UTC, and if a country is located on the **east of the meridian**, it has to **add**.
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RIGHTS OF THE VOTERS' IN INDIA

What has the Supreme Court Ruled?

- According to the apex court,
 - **Voters' Right to Know is not absolute.**
 - **A candidate's choice to retain his privacy** on matters which were of no concern to the voters or were irrelevant to his candidature for public office,
 - **Did not amount to a 'corrupt practice'** under Section 123 of the Representation of People Act (RPA), 1951.
- Such non-disclosure **would not amount to a "defect of a substantial nature"** under Section 36(4) of the RPA 1951.
- There was no obligation for a candidate to lay his life exposed for the electorate to probe and scrutinise.
- **It is not necessary that a candidate declare every item of movable property** that he or his dependent family members own, such as clothing, shoes, crockery, stationery and furniture, etc.

- But the Court said **every case would turn on its own peculiarities** on what would amount to a non-disclosure of assets of a substantial nature.
 - **For example**, suppressing information about a collection of expensive watches from voters would be a substantial defect.
 - However, if a candidate and his family members each own a simple watch, suppression of the value of such watches may not amount to a defect at all.

Rights of the Voters' in India:

- The voter's have **certain rights that are bestowed on them by the Election Commission of India (ECI)**.
- These rights are **safeguarded by the Constitution of the country** and are provided to all the citizens of the country. Such Voter rights are -
- **Right to Know:**
 - The voter has the right to know about the candidates contesting the elections.
 - The voters have the right to get the details of the past records of the candidate (criminal records, if any), financial position of the candidate, their election manifesto, etc.
- **Voting rights of NRIs:**
 - **The NRIs are those citizens of the country** that are not present at their place of residence for reasons of employment or any other reasons but are still eligible to vote in the elections of the country.
 - NRIs were not initially allowed to vote in the elections of the country. However, a subsequent amendment allowed the NRIs to vote for elections in India.
- **Voting rights of Prisoners:** The constitution of India and the guidelines of the ECI do not permit a person who is imprisoned to vote in the upcoming elections of the country.
- **NOTA (Right Not to Vote):**
 - None of The Above (NOTA) is another right of the voter where the voter participates in the electoral process but does not vote or choose any of the contesting candidates.

- This right is exercised when the voter feels that none of the contesting candidates are worthy of his/her vote.
 - **Tendered Voting Rights:**
 - This right can be exercised by a voter when he/she realises that another person has wrongly voted on their behalf.
 - Such a person will need to provide a valid identity proof to authenticate their voting right and vote on a separate ballot paper as per ECI.
 - **Voting rights of Disabled or Infirm Citizens:** The ECI will provide assistance to such voters to cast their votes by taking their vote with the help of an Electoral Officer.
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INTERNATIONAL NARCOTICS CONTROL BOARD



India's Jagjit Pavadia was re-elected for a third term for five years from March 2025-2030 to the International Narcotics Control Board.

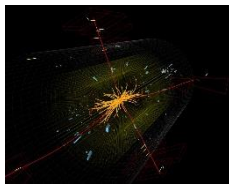
International Narcotics Control Board was established in 1968 and is the **independent and quasi-judicial monitoring** body for the implementation of the **United Nations international drug control conventions**.

- **History**
 - It was established by the **Single Convention on Narcotic Drugs of 1961** by merging two bodies: **the Permanent Central Narcotics Board**, created by the 1925 International Opium Convention; and the **Drug Supervisory Body**, created by the 1931 Convention for Limiting the Manufacture and Regulating the Distribution of Narcotic Drugs.
- **Members:**
 - It consists of **13 members** who are elected by **the Economic and Social Council** and who serve in their personal capacity, not as government representatives.
 - **Three members** with medical, pharmacological or pharmaceutical experience are elected from a list of persons **nominated by the World Health**

Organization (WHO) and 10 members are elected from a list of persons nominated by Governments.

- **Mandate:** INCB endeavours in cooperation with Governments, to ensure that adequate supplies of **drugs are available for medical and scientific uses** and that the diversion of drugs from licit sources to illicit channels does not occur.
- It also monitors Governments' control over chemicals used in the illicit manufacture of drugs and assists them in preventing the diversion of those chemicals into illicit traffic.

WHAT IS HIGGS BOSON?



Nobel prize-winning British physicist **Peter Higgs**, who proposed the existence of a mass-giving particle, which became known as the Higgs boson or the "God particle", has died aged 94.

- The Higgs boson is the **fundamental force-carrying particle of the Higgs field**, which is **responsible for granting fundamental particles their mass**.
- This field was first proposed in the mid-sixties by **Peter Higgs**, for whom the particle is named.
- The particle was finally **discovered in 2012, by researchers at the Large Hadron Collider (LHC)**, the most powerful particle accelerator in the world, located at the European particle physics laboratory CERN, Switzerland.
- The LHC confirmed the existence of the Higgs field and the mechanism that gives rise to mass and thus **completed the standard model of particle physics**.
- It is **one of the 17 elementary particles that make up the Standard Model of particle physics**, which is scientists' **best theory about the behaviours of the universe's most basic building blocks**.
- Higgs boson plays such a fundamental role in subatomic physics that it is sometimes **referred to as the "God particle."**

Features:

- The Higgs boson has a **mass of 125 billion electron volts**, meaning it is **130 times more massive than a proton**.
- It is also **chargeless with zero spin**, a quantum mechanical equivalent to angular momentum.
- It is the **only elementary particle with no spin**.

What is a Boson?

- A boson is a "**force carrier**" particle that comes into play **when particles interact** with each other, with a **boson exchanged** during this interaction. For example, **when two electrons interact**, they **exchange a photon**, the force-carrying particle of electromagnetic fields.
- Because quantum field theory describes the microscopic world and the quantum fields that fill the universe with wave mechanics, a boson can **also be described as a wave in a field**.
- **So, a photon** is a particle and a wave that **arises from an excited electromagnetic field**, and the **Higgs boson** is the particle or "quantized manifestation" that **arises from the Higgs field when excited**.

WHAT IS C-DOME?

Israel for the first time deployed its ship-mounted defence system, called the C-Dome.



C-Dome is a **naval version of Israel's Iron Dome** air defence system, used to shield against rocket and missile attacks.

- The **Iron Dome**, which was activated in 2011 and has an **effectiveness of about 90%**, works by using radars to detect short-range rockets before destroying them with its own missiles.
- The **C-Dome**, which was first unveiled in 2014, **declared operational in 2022**, works similarly to the Iron Dome, using some of the **same technology**, except that it's **mounted on ships**.



CROSS & CLIMB ROHTAK



- It is mounted on Sa'ar 6-class corvettes, German-made warships, and **uses the same interceptor as the Iron Dome.**
- **Unlike the Iron Dome**, which has its own dedicated radar, the **C-Dome is integrated into the ship's radar** to detect incoming targets.
- C-Dome **ensures full-circular vessel protection** and **high kill probability** against a full spectrum of modern threats—maritime and coastal.

Key Facts about Iron Dome:

- It is Israel's **air missile defense system** that can **defend against short-range rockets, intercepting them in the air** above the state.
- It is capable of successfully **handling multiple rockets** at a time.
- **Developed by Rafael Advanced Defense Systems and Israel Aerospace Industries**, the system became operational in 2011.
- **Features:**
 - It is powered by **missile-defense batteries.**
 - It has **all-weather capabilities** and is able to function night or day.
 - It can **launch a variety of interceptor missiles.**
 - It is designed to shoot down missiles with a **range of about 40 miles or less.**
 - It also has the **ability to be moved**, either onto ships or across land, to better suit defense needs.
 - It **must be reloaded to continuously intercept** incoming missiles.
 - The Iron Dome operates through **three main components:**
 - a **radar** that detects incoming rockets,
 - a **command-and-control system** that determines the threat level,
 - **an interceptor** that seeks to destroy the incoming rocket before it strikes.

INDIA 2ND HIGHEST IN HEPATITIS B & HEPATITIS C IN THE WORLD

The World Health Organisation on April 9 published the 2024 Global Hepatitis Report.

About Hepatitis:

- Hepatitis refers to an **inflammatory condition of the liver**.
- It is commonly the result of a **viral infection**, but there are other possible causes of hepatitis.
 - These include autoimmune hepatitis and hepatitis that occurs as a secondary result of medications, drugs, toxins, and alcohol.
 - Autoimmune hepatitis is a disease that occurs when your body makes antibodies against your liver tissue.
- The liver is a vital organ that processes nutrients, filters the blood, and fights infections.
- When the liver is inflamed or damaged, its function can be affected.
- The five main viral classifications of hepatitis are hepatitis A, B, C, D, and E. A different virus is responsible for each type of viral hepatitis.

Causes of Hepatitis:

Type of hepatitis	Common route of transmission
hepatitis A	exposure to HAV in food or water
hepatitis B	contact with HBV in body fluids, such as blood, vaginal secretions, or semen
hepatitis C	contact with HCV in body fluids, such as blood, vaginal secretions, or semen
hepatitis D	contact with blood containing HDV
hepatitis E	exposure to HEV in food or water

- **Causes of non-infectious Hepatitis:**
 - Although hepatitis is most commonly the result of an infection, other factors can cause the condition.

- **Alcohol and other toxins:**

- Excess alcohol consumption can cause liver damage and inflammation. This may also be referred to as alcoholic hepatitis.
- The alcohol directly injures the cells of your liver. Over time, it can cause permanent damage and lead to thickening or scarring of liver tissue (cirrhosis) and liver failure.
- Other toxic causes of hepatitis include misuse of medications and exposure to toxins.

- **Autoimmune System Response:**

- In some cases, the immune system mistakes the liver as harmful and attacks it.
- This causes ongoing inflammation that can range from mild to severe, often hindering liver function.
- It's three times more common in women than in men.

Common Symptoms of Infectious Hepatitis:

- Fatigue, flu-like symptoms, dark urine, pale stool, abdominal pain, loss of appetite, unexplained weight loss, yellow skin and eyes, which may be signs of jaundice.

Prevention of Hepatitis:

- There are **vaccines** that can help protect against many hepatitis viruses.
 - There are vaccines for prevention against Hepatitis A, B and D.
 - However, it is important to note that **currently there is no vaccine for Hepatitis C or E.**
 - Minimizing the risk of exposure to substances containing these viruses can also be an important preventive measure.
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