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Hoolock gibbon

- The Centre for Cellular and Molecular Biology (CCMB) study has found that there is only one species of Hoolock gibbons and not two in India.
- The Western Hoolock gibbons (Hoolock Hoolock) are the only apes in India. The other species, Mishmi Hills gibbons (Hoolock leuconedys), is not present here.
- There was confusion before as these small apes present in the northeast have populations had different physical features.
- The CCMB team corroborated the data with **mitogenome** (genetic information contained in mitochondria) analysis and estimated that the split between two species occurred 1.49 million years ago.
- The new findings will help design conservation programmes by inter-breeding the two populations and maintain their genetic diversity.

Fractional Ownership

- The term ownership usually signifies exclusive right over an asset.
- Fractional ownership allows investors to own a bit of a pricey asset. Unrelated parties can share passive ownership of a high-value asset, thus democratising ownership.
- This can be a jet, commercial real estate, a luxury villa or warehouse.
- Both income and expenses related to this asset are then shared by investors in proportion to their investment.
- Nowadays, physical assets such as vehicles, equipment and furniture leased to corporates are also tapping into the fractional ownership craze.
- In such assets, the minimum investment can be as low as ₹20,000.
- In property, fractional ownership legally divides ownership rights across many owners. Pre-leased commercial real estate investments can be as low as ₹5 lakh.
- Typically, fractional ownership investments in commercial real estate are done through a Specific Purpose Vehicle (SPV) in which funds are raised to own and manage the property.
- As an investor, you will own shares of the SPV holding the property.

Tax on Oxygen Concentrators as Gifts

- The government has waived Integrated Goods and Services Tax (IGST) and customs duty on oxygen concentrators that are gifted from overseas or imported.
- But the Foreign Contribution (Regulation) Act (FCRA) is triggered in the case of non-profit institutions.
- Only non-profit entities with a valid FCRA registration can legally receive charitable funds and articles from donors outside India.
- For any non-profit entities without an FCRA licence or for profit companies receiving these equipments as gifts, there could be questions later on under FCRA.
- Even certain individuals who import oxygen concentrators could face taxes. There is a need for clarification.

Millisecond Pulsars

- A millisecond pulsar is a pulsar that spins hundreds of times per second or, equivalently, once every few milliseconds.
- Under the project Transients and Pulsars with MeerKAT (TRAPUM), a team of astronomers has discovered eight rare millisecond pulsars hiding inside global clusters of stars surrounding the Milky Way.
- They used the MeerKAT telescope to search specifically for millisecond pulsars, which are much rarer than slower spinning pulsars.
- [MeerKAT telescope is an array of 64 individual satellite dishes run by the South African Radio Astronomy Observatory (SARAO).]
- To do this, they focused on nine globular clusters — a collection of stars that are bound together by their own gravity and orbit outside the edge of a galaxy — surrounding the Milky Way.
- Millisecond pulsars are quite rare because their rapid spins can be achieved **only in binary systems.**
- [In binary systems, two stellar bodies rotate around one another.]
- For pulsars, the neutron star's partner is usually a star, but occasionally one member of the binary can be a white dwarf, neutron star or a black hole.
- But they are also found in the globular clusters. In fact, over 90% of the known pulsars in globular clusters are millisecond pulsars.
- Millisecond pulsars can be regarded as **super-precise cosmic clocks**.

Pulsar

- A pulsar is a neutron star that gives off two beams of radio waves at each pole, due to its strong magnetic field, while also rapidly spinning because of its incredibly large mass.
- A neutron star has city-sized stellar objects packed with a mass of at least 1.4 times the mass of our sun, which emerges from the explosive deaths of their

parent stars.
- They look like flashing stars, visible only when the beams shine directly at us.
- Unlike the millisecond pulsar, the vast majority of pulsars rotate once every few hundreds of milliseconds or more.
- A millisecond pulsar, on the other hand, is a pulsar that spins hundreds of times per second or, equivalently, once every few milliseconds.

DeepShake

- DeepShake is an earthquake early warning system that uses artificial intelligence (AI) to predict how the ground will move during a temblor to give several seconds' advance notice that the earthquake is coming.
- It uses a deep neural network, a type of AI learning, to identify patterns from past earthquakes in order to predict how the shaking from a new quake will travel.
- This could lead to faster processing and easier generalizability across different earthquake-prone regions.
- Despite the fact that DeepShake was given no information about the earthquake's location or type, it was able to warn of shaking at other seismic stations in the network between 3-13 seconds before it happened

Source: Times of India, Economic Times, Business Line, Live Science

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