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Current Affairs - 15 February 2025

WHAT IS ALZHEIMER'S DISEASE?



In a new research published in the journal Alzheimer's & Dementia, scientists have found a single cause of development of Alzheimer's disease, and that is the formation of stress granules.

- It is a **neurological disorder** that **slowly destroys memory and thinking skills** and, eventually, the ability to carry out the simplest tasks.
- It is the **most common cause of dementia**, a general term for memory loss and other cognitive abilities serious enough to interfere with daily life.
 - It accounts for **60-80% of dementia cases**.
- It involves **parts of the brain that control thought, memory, and language**.
- The condition **usually affects people aged 65 years and over**, with only 10% of cases occurring in people younger than this.

Cause: The exact cause of Alzheimer's disease is **not fully understood**, but it is **believed to be influenced by a combination of genetic, environmental, and lifestyle factors**.

Symptoms:

- The early signs of the disease include **forgetting recent events or conversations**.
- Over time, it **progresses to serious memory problems** and loss of the ability to perform everyday tasks.
- **On average, a person with Alzheimer's lives four to eight years after diagnosis** but can live as long as 20 years, depending on other factors.

Treatment: There's **no cure** for Alzheimer's, but certain medications and therapies can help manage symptoms temporarily.



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WHAT IS MATSYA 6000?



- It is India's deep-sea submersible designed for ocean exploration, particularly for deep-sea mining and biodiversity studies.
- Developed by the National Institute of Ocean Technology (NIOT) under the Samudrayaan Mission, it is capable of diving to a depth of 6,000 meters in ocean.
- Features:
 - It is equipped with cutting-edge technologies, including advanced life support systems, navigation equipment, robotic arms for sample collection, and high-resolution imaging systems.
 - It houses a 2.1-metre internal diameter Titanium alloy personnel sphere to safely carry humans to a 6000 m depth.
 - The submersible is designed to enable continuous operations at 6000 m depth for up to 12 hours with an emergency endurance of up to 96 hours for conducting deep water observation and exploration.

Samudrayaan Mission:

- It is India's first manned mission to explore the deep ocean.
- It is aimed to develop a self-propelled manned submersible to carry three human beings to a water depth of 6,000 meters in the ocean with a suite of scientific sensors and tools for deep ocean exploration.
- It is designed to study the deep ocean resources and conduct biodiversity assessments as well.
- The mission will not disturb the ecosystem as the submersible is used solely for exploration purposes.
- The project is part of the larger Deep Ocean Mission, which supports the Central Government's Blue Economy policy.
- Nodal Ministry: Ministry of Earth Sciences (MoES)



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CORRUPTION PERCEPTIONS INDEX



- It is the most widely used global corruption ranking in the world. It is published annually by the non-governmental organisation **Transparency International since 1995**.
- It is an index which ranks countries "by their perceived levels of public sector corruption, as determined by expert assessments and opinion surveys."
- It generally defines corruption as an "**abuse of entrusted power for private gain**". It uses a **scale of zero to 100**, where "zero" is highly corrupt and "100" is very clean.
- It measures how corrupt each country's public sector is perceived to be, according to experts and business people.
- The score for each country is derived from a minimum of **three data sources**, selected from 13 distinct corruption surveys and assessments. These sources are gathered by a range of reputed organisations, such as the **World Bank and the World Economic Forum**.

Highlights of Corruption Perceptions Index (CPI) for 2024:

- The index, which lists countries by their perceived levels of public sector corruption, ranked **Denmark at the top**, followed by Finland, and Singapore.
- This year's Index highlighted the **connection between climate action and corruption**, linking it to the broader theme of climate financing.
- It gave India a **CPI score of 38**. In 2023, India's overall score was 39 while in 2022, it was 40. There is a decline in the score of India on CPI. In the Asia-Pacific region, the average score for the region has dropped by one point to 44 as the countries are still failing to deliver on anti-corruption pledges.
- Corruption not only undermines development in a country but is also a key cause of declining democracy, instability, and human rights violations as highlighted by the report.



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ADJUSTED GROSS REVENUE (AGR)



- AGR is a metric used to determine the **revenue that telecom operators must share with the government** in the form of spectrum usage charges or licensing charges.
- Under this mechanism, **telecoms are required to share a percentage of AGR with the Department of Telecommunication**
- **Calculation of AGR and Controversy:**
 - As per the Dept of Telecom, the AGR calculations should incorporate all revenues earned by a telecom company. This also includes revenues from **non-telecom sources** such as deposit interests and sale of assets.
 - The **companies**, however, are of the view that AGR should **comprise the revenues generated from telecom services only**, and non-telecom revenues should be kept out of it.
- In October 2019, the **Supreme Court widened the definition of AGR to include the government's view.**
- The Supreme Court ordered it to include all revenues, except for termination fees and roaming charges, as a part of the AGR.

U.S.-INDIA COMPACT INITIATIVE



- The **Catalyzing Opportunities for Military Partnership, Accelerated Commerce & Technology (COMPACT)** initiative will drive transformative change across key pillars of cooperation.
- It is a framework that will lay the foundation for **deepening military partnerships**, with a clear focus on **technology, trade, and defence industrial cooperation.**

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Key features of COMPACT Initiative:

- **New Defence Procurements & Regulatory Reforms:** A new **ten-year Framework for the US-India Major Defense Partnership**, with the US pledging additional defence sales and co-production initiatives.
 - **Advancing Defence Technologies & Military Collaboration:** To accelerate cooperation in space, air defence, missile systems, maritime, and undersea operations. The launch of the **Autonomous Systems Industry Alliance (ASIA)** will spur innovation in AI-enabled counter-UAS and maritime defence.
 - **Economic & Trade Expansion:** Under this component both countries aim to double bilateral trade to \$500 billion by 2030 under “Mission 500.”
 - **Strengthening Technology & Innovation Ties:** The launch of the US-India **TRUST initiative** will boost cooperation in defence, AI, semiconductors, quantum computing, biotechnology, energy, and space.
 - **Boosting Space Cooperation & Critical Minerals Partnership:** To deepen space collaboration includes the introduction of **INDUS Innovation**, inspired by the INDUS-X platform, which will drive academic and industrial partnerships in space and emerging tech.
 - **Space Collaboration in 2025:** NASA and ISRO partner via AXIOM to send the first Indian astronaut to the ISS and expedite the NISAR dual-radar satellite launch.
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FOETUS IN FOETU



Recently, doctors at the Buldhana District Women’s Hospital in Maharashtra detected a rare case of “foetus in foetu” in a pregnant woman.

- It is a rare **congenital disorder** which is also known as



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- It is a foetus-like mass **developed within the body of the other foetus** in a monozygotic twin pregnancy.
 - Basically, one twin is very underdeveloped and enwrapped inside the body of the other twin, so much so that the pregnancy is considered a singleton pregnancy.
 - The presence of a twin inside the body of the other **twin may go undetected for years**. In this case, the condition was discovered during a routine pregnancy scan itself. The woman delivered the baby by a C-section delivery.
 - This condition occurs when a malformed foetus develops inside another foetus.
 - It affects about one in 500,000 births. Less than 200 cases have been reported worldwide, with about 10 to 15 cases in India.
 - **Causes of Foetus in Foetu:**
 - The exact cause of this condition is **not fully understood**, but it's believed to result from an **anomaly during the development of monozygotic** or identical twins.
 - About 10 to 15 days after the conception of monozygotic twins, the cell mass of the embryo may be split unevenly, due to which one twin is smaller and incompletely formed with the other twin fully developed.
 - The smaller twin gets trapped within the larger twin. The trapped twin is **considered "parasitic,"** as it draws its blood supply and nutrients from the other **"host" twin**.
 - The **trapped or "parasitic twin"** has some morphologic features of a normal foetus such as an umbilical cord-like structure, a bag of membranes surrounding it, and blood vessel connections to the host twin. It may have a vertebral column, limbs, and a few organs but lacks vital organs like the brain, heart or gut. Despite having "living tissue," the parasitic twin has no prospects of independent existence outside the host twin.
 - Generally, the **parasitic twin is found in the abdomen of the host twin**. Rarely, it may be found in other organs like the brain or chest.
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TRUMP'S RECIPROCAL TARIFFS AND THE IMPACT ON INDIA

Reciprocal tariffs

- Tariffs are taxes imposed by an importing country on foreign goods, making them more expensive for domestic consumers.
 - For example, if a US citizen orders a Banarasi saree from India, US import tariffs will increase its price, affecting affordability.
- Higher tariffs slow down global trade by raising costs for all parties involved.

Trump Imposing Reciprocal Tariffs – Reasons

- Trump's decision is driven by multiple factors, not just targeting a single country.
- While China is the US's biggest competitor, his initial tariff threats were aimed at close allies like Canada and Mexico.
- **Targeting Allies and Trade Partners**
 - Trump has criticized the **European Union (EU)** for unfair trade practices against US companies and linked tariffs on **Canada and Mexico** to broader concerns like **illegal immigration** and **drug exports** into the US.
- **Trump's Obsession with Trade Deficits**
 - The **primary motivation** behind Trump's tariffs is his strong opposition to **trade deficits**—the gap between imports and exports.
 - The US trade deficit is nearing **\$1 trillion**, while China enjoys a surplus of over **\$1 trillion**.
 - Trump views trade deficits as evidence that the world is **cheating the US** by not playing fair.
- **How Trump Plans to Eliminate Trade Deficits**
 - **Forcing Other Countries to Import More US Goods.**
 - **Compelling Companies to Set Up Manufacturing in the US.**

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Reciprocal tariffs - Impact on India

- Given India's historically high tariffs on US goods, it is expected to be among the nations most affected by Trump's decision.
 - Bilateral trade (April–Nov 2024): \$82.52 billion
 - India's exports to the US: \$52.89 billion
 - India's imports from the US: \$29.63 billion
 - Trade surplus in India's favour: \$23.26 billion
 - **Sectors at Risk**
 - US tariffs could impact key Indian exports, including food products, textiles, clothing, electrical machinery, gems & jewellery, pharmaceuticals, and automobiles.
 - **Increased US Imports**
 - To balance trade, India may **import more US goods**, including **defence equipment, oil, and consumer products**. This could lead to a reduction in India's trade deficit with the US.
 - **Rupee Depreciation**
 - Higher imports from the US would **increase demand for dollars**, leading to a **weaker Indian rupee** against the US dollar.
 - **Impact on Domestic Consumption & GDP Growth**
 - The recent **Rs 1 lakh crore tax break** in India aimed at boosting consumption may lead wealthy Indians to **spend more on US goods**, rather than on Indian products.
 - **Long-Term Benefits & Risks**
 - **Cheaper US goods** could benefit Indian consumers.
 - Stronger trade ties with the US could help India's **economic growth and global positioning**.
 - However, this might **undermine Atmanirbhar Bharat**, as more US imports reduce demand for Indian-made products.
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THE STRATEGIC IMPORTANCE OF THE INDIAN OCEAN

Historical Significance of the Indian Ocean:

- The **Indian Ocean derived its name** from the historical and civilisational influence that India wielded on the countries of the region.
- **It served as a crucial trade route** for Indian merchants (like the Manigramam Chettis and Nanadesis) and dynasties like the **Pallavas, Cholas, and Andhras**.
- Ancient texts like **Kautilya's Arthashastra** highlighted the importance of maritime activities.
- **Fa-Hien**, a Chinese traveller, wrote in 415 CE that the ship that took him from Ceylon to Sri Vijaya (present-day Indonesia) had 200 merchants who professed the "Brahmanical religion".
- The Indian Ocean **enabled India's economic dominance in the first millennium** but was later **controlled by European colonial powers**.

Strategic importance:

- The Indian Ocean today is a strategic space with **increasing military and commercial activities**.
- **The US and UK**, with their Diego Garcia base, and **France** with Reunion Island, are already active in the region.
- Also, **China** is investing heavily in the region to spread its influence.

Conclusion:

- The peninsular character of India and the essential dependence of its trade on maritime traffic give the Indian Ocean a preponderant influence on its destiny. (**KM Panikkar**)
 - India must **enhance its naval capabilities and strategic outreach** to secure its maritime interests.
 - The IOC is a crucial step toward **ensuring regional stability and asserting India's influence** in the maritime domain.
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