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6. Short News

CLEAR Technology

Context – Scientists at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) developed a new protein imaging platform called CLEAR for advanced disease research.

About the CLEAR Technology

1. CLEAR (Cleavable Light-Erased Antibody Reporter) is an advanced protein imaging technology.
2. Working Mechanism – It uses light-cleavable fluorescent probes that can be erased and reused repeatedly to image multiple proteins within the same biological sample.
3. Why it Matters – Proteins control most biological functions and serve as key indicators for diseases such as cancer and neurological disorders.
4. Importance – CLEAR enables high-resolution mapping of proteins in cells and tissues, helping research in cancer, immunology, neurological disorders and precision medicine.
5. Publication – The study was published in the journal Chemical Science.
6. Key Features of CLEAR –
 1. High Multiplexing – CLEAR allows imaging of many proteins sequentially using a single fluorophore.
 2. High Spatial Resolution – It generates highly detailed protein maps across cells and tissues.
 3. Compatible with Live Cells – The method works even with delicate biological samples and live cells.
 4. Faster and More Efficient – Unlike many existing multiplex imaging techniques, CLEAR combines Speed, High resolution, Reusability and Reduced complexity.

World Yogasana Championship 2026

Context – The union minister for Youth Affairs and Sports launched the official championship film of the 1st World Yoga Sana Championship 2026 in New Delhi.

1. The championship logo, trophy, official jersey and mascot, “Veer the Lion” were also unveiled.

About the World Yogasana Championship (WYC) 2026

1. Venue and Schedule – The inaugural edition of the World Yogasana Championship (WYC) 2026 will be held from June 4 to 8, 2026 at EKA Arena in Ahmedabad.
2. First Global Yogasana Sporting Event – It is the first-ever global championship dedicated to Yogasana as a competitive sport.
3. Aim of Olympic Recognition – The championship aims to position Yogasana as a globally recognised sporting discipline and pave the way for Olympic recognition.
4. International Participation – Around 75 countries have registered for the event, with participation expected from over 500 athletes and delegates.
5. Participating Nations – Countries participating include Uganda, Zambia, Sri Lanka, Nepal, Kenya, Japan, Oman, Mauritius and the Netherlands.

Dedicated Ministry for Artificial Intelligence

Context – Tamil Nadu created a dedicated Ministry for Artificial Intelligence, Information Technology and Digital Services, following Kerala's recent cabinet-level AI governance initiative.

About Dedicated Ministry for Artificial Intelligence (AI)

1. A dedicated AI Ministry is a specialised government department responsible for AI policy formulation, digital governance, emerging technologies, ethical regulation, innovation promotion and AI ecosystem development.
2. Pioneer States
 1. Tamil Nadu – Tamil Nadu appointed R. Kumar as Minister for Artificial Intelligence, Information Technology and Digital Services to oversee AI governance, digital infrastructure and technology adoption.
 2. Kerala – Kerala created a dedicated AI portfolio under the Industries and Commerce Department, integrating AI with Information Technology, start-ups and industrial development.

Nautapa and Rising Heatwave Conditions in India

Context – India is experiencing intense “Nautapa” heatwave conditions from May 25 to June 2 amid the continuing impact of a strong Super El Niño event.

About Nautapa

1. Nautapa refers to the traditionally recognised nine hottest days of the Indian summer season occurring before the arrival of the southwest monsoon.
2. Traditional Description – The term originates from Hindu astronomical traditions and begins when the Sun enters the Rohini Nakshatra, usually during late May.
3. Climatic Features – Nautapa is associated with extremely high temperatures, dry winds, strong solar radiation and heatwave conditions across northern and central India.
4. Geographical Impact – States such as Rajasthan, Punjab, Haryana, Delhi, Uttar Pradesh and Madhya Pradesh experience the most severe impact during this period.
5. Temperature Range – Temperatures during Nautapa commonly range between 40°C and 46°C, with increased risk of dehydration, heatstroke and water scarcity.

Key Factors Contributing to India's Heat

1. Super El Niño Conditions – A strong El Niño event in the Pacific Ocean has increased global temperatures and intensified heatwave conditions across South Asia, including India.
2. Intense Solar Heating – Clear skies and direct solar radiation during late May cause rapid land-surface heating before the onset of monsoon rainfall.
3. Dry Continental Winds – Hot and dry winds from arid northwestern regions reduce atmospheric moisture and aggravate daytime temperatures across inland India.
4. Delayed or Weak Monsoon Conditions – Any delay in monsoon advancement prolongs heatwave conditions and increases stress on agriculture, water resources and electricity demand.
5. Urban Heat Island Effect – Rapid urbanisation, concrete infrastructure and reduced green cover trap heat in cities, making urban centres significantly hotter than surrounding rural areas.

Impacts of Extreme Heat

1. Public Health Risks – Heatwaves increase cases of heatstroke, dehydration, cardiovascular stress and mortality among vulnerable populations such as elderly people and outdoor workers.
2. Agricultural Stress – High temperatures reduce soil moisture, damage crops and increase irrigation demand, affecting agricultural productivity and food security.
3. Pressure on Energy and Water Resources – Electricity demand rises sharply due to cooling requirements, while water scarcity worsens in drought-prone and densely populated regions.

Belgorod Region

Context – Russia's Belgorod region witnessed missile and drone attacks that damaged energy infrastructure and disrupted electricity and water supplies near the Ukraine border.

About Belgorod Region

1. Belgorod is an administrative region (oblast) of western Russia that has gained strategic importance during the Russia–Ukraine conflict.
2. Location – The Belgorod region is situated in southwestern Russia and shares an international border with northeastern Ukraine.
3. Administrative Centre – The city of Belgorod serves as the administrative headquarters of the region and lies close to key conflict zones

Significance of Belgorod Region

1. Strategic Border Region – Belgorod functions as a critical border region for Russian military logistics, troop movement and supply operations connected to the Ukraine conflict.
2. Energy and Infrastructure Hub – The region contains important transport, electricity and fuel infrastructure, making it vulnerable to drone and missile attacks during wartime escalation.
3. Security and Defence Importance – Frequent cross-border strikes in Belgorod highlight the growing role of drones, missile systems and hybrid warfare in modern conflicts.