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## Current Affairs - 08 October 2025

### WHAT IS A UNICORN COMPANY?



- A unicorn company is a **privately owned start-up** that has been valued at over **\$1 billion**.
- It is commonly **used in the venture capital industry**. The term was first popularized by venture capitalist Aileen Lee in 2013, when she referred to the 39 startups that had a valuation of over \$1 billion as unicorns.
- **Key Characteristics** of a Unicorn Startup:
  - **Valuation:** A **billion-dollar** valuation or more.
  - **Private Ownership:** **Not publicly traded on a stock market**.
  - **High Growth Potential:** Demonstrates rapid growth and innovation.
  - **Disruptive Technology:** Often introduces **innovative products or services** that disrupt existing industries.
  - **Attracts Significant Investment:** Secures substantial funding from venture capitalists and other investors.
- The **valuation** of unicorns is **not expressly linked to their current financial performance**, but largely based on their growth potential as perceived by **investors** and venture capitalists who have taken part in various funding rounds.
- **Some unicorns choose to go public** by launching an initial public offering (IPO); **some opt to remain private** using their funding rounds to avoid going public; and still **others end up getting acquired by bigger companies**.
- As of July 2025, there are over **1,200 unicorns around the world**.

### What are Gazelles and Cheetahs in the Startup ecosystem?

- **Gazelle** is a startup founded after 2000 with the potential to go unicorn in two years, while “cheetah” may go unicorn in the next four years.
- **Gazelles** have an estimated valuation ranging from \$500 million to \$1 billion, and the valuation of **cheetahs** ranges from \$200 million to \$500 million.



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### UNESCO



- The **United Nations Educational, Scientific and Cultural Organization (UNESCO)** is a specialized agency of the **United Nations**.

- **Goal:** It is dedicated to **strengthening our shared humanity** through the promotion of education, science, culture, and communication.
- It was **started in 1945** after World War II. It took over from an older group called the **International Committee on Intellectual Cooperation**.
- It is part of the United Nations Sustainable Development Group.
- UNESCO **focuses on five main areas:** Education, Natural sciences, Social and human sciences, Culture, Communication and information.

**Member countries:** UNESCO has 194 member countries and 12 associate members.

**Headquarter:** Paris, France

### Functions of UNESCO

- It supports member states' **efforts to eliminate illiteracy**, encouraging the extension of free education, and acts as a clearinghouse for the exchange of ideas and knowledge.
  - It also works with many other groups, including non-governmental organizations and private companies.
  - UNESCO designates and **maintains a list of World Heritage Sites**, which are places of outstanding universal value that deserve protection for future generations.
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### NOBEL PHYSICS 2025: QUANTUM TECH TURNS TANGIBLE

The **2025 Nobel Prize in Physics** went to **John Clarke, Michel Devoret, and John Martinis** for demonstrating that **quantum tunnelling** — where particles cross barriers they shouldn't be able to — can occur not only in subatomic particles but also in macroscopic superconducting circuits.

Their pioneering work proved that quantum phenomena, once thought to exist only at the atomic and subatomic scale, can also occur in man-made electrical circuits visible to the naked eye. It paved the way for technologies that could transform computing, sensing, and communication.

#### **Quantum Tunnelling and Energy Quantisation Made Visible**

- The Nobel laureates — John Clarke, Michel Devoret, and John Martinis — demonstrated two of quantum physics' defining principles, **tunnelling** and **energy quantisation**, in a **macroscopic electric circuit**.
- **The Josephson Junction: Heart of the Discovery**
  - At the core of their experiments lies the **Josephson junction**, a device where two superconductors are separated by a thin insulating barrier.
  - The researchers asked whether the phase difference — a measurable electrical property — across this junction could behave like a single quantum particle.
  - By sending current through the circuit, they observed that when it was small, electrons (in Cooper pairs) were trapped, producing no voltage.
    - Cooper pairs are pairs of electrons bound together by an attractive force, mediated by lattice vibrations called **phonons**, that occurs at low temperatures in superconducting materials.
    - These pairs, which have opposite spins and total zero spin, behave as a single quantum unit called a **boson** and can flow through the material without resistance, enabling superconductivity.
  - But sometimes, the current “tunnelled” through the barrier, suddenly flowing freely and generating a measurable voltage.



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- **Solving the Fragility Problem**

- Early efforts to detect quantum tunnelling failed because of environmental noise and microwave interference.
- The Berkeley team, led by Clarke, solved this by using special filters, shielding, and ultra-cold, stable setups to isolate the circuit.
- When cooled to **near absolute zero**, the system behaved exactly as quantum theory predicted — the rate of tunnelling became independent of temperature, confirming it wasn't due to thermal noise but a true quantum process.

### Applications: From Quantum Chips to Sensors

- The laureates' findings underpin many modern quantum technologies:
    - **Superconducting qubits:** Circuits that act like artificial atoms and are the basis of quantum computers by Google, IBM, and others.
    - **Quantum sensors:** Devices capable of detecting tiny magnetic fields or gravitational variations, useful in medical diagnostics and geophysical exploration.
    - **Quantum amplifiers:** Boost faint signals without adding noise, vital for space exploration and dark matter detection.
    - **Metrology:** Josephson junctions now define electrical standards like the volt and ampere with quantum-level precision.
    - **Microwave-to-optical converters:** Link quantum processors to optical fibre networks for quantum communication.
  - **Turning Fragility into Functionality**
    - Ultimately, these devices are powerful because even **minute external changes** cause **large, measurable shifts** in the circuit's quantum state.
    - The laureates' work transformed this **sensitivity** — **once a limitation** — into a **defining feature**, creating tools that bridge **quantum theory and real-world technology**.
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### INDIA-UK TIES REBOOTED - KEIR STARMER'S VISIT AND THE VISION 2035 ROADMAP

- **British Prime Minister Keir Starmer's first official visit to India** on October 8–9, 2025, reciprocating Prime Minister Narendra Modi's visit to London earlier that year, signifies a major milestone in India–UK strategic and economic relations.
- The visit comes at a time of **global geopolitical flux, trade disruptions, and shifting security alliances**.

#### **Strengthening Bilateral Economic Cooperation:**

- **Comprehensive Economic and Trade Agreement (CETA):**
  - The centrepiece of the renewed partnership, CETA, aims to enhance bilateral trade by £25.5 billion annually, targeting a total trade value of £90 billion (\$120 billion) by 2030.
  - It promises **major benefits for Indian sectors** such as textiles, footwear, toys, marine products, engineering goods, and chemicals.

#### **Geopolitical and Strategic Dimensions:**

- **Complementary strengths and shared vision:**
  - The **India–UK Comprehensive Strategic Partnership – Vision 2035** provides a 10-year roadmap focusing on trade, innovation, education, defence, health, and sustainable development.
  - Both nations collaborate on global initiatives such as the One Sun One World One Grid (OSOWOG) and the Coalition for Disaster Resilient Infrastructure (CDRI).
- **Defence and security cooperation:**
  - Ongoing bilateral defence consultations and joint exercises like **Konkan 2025** exemplify growing military synergy.
  - The goal is to move towards **co-development and co-production** in defence manufacturing, strengthen cybersecurity cooperation, and enhance real-time intelligence sharing.



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### Migration, Mobility and People-to-People Linkages:

- **Migration and Mobility Partnership Agreement (2021):** Full implementation remains incomplete, but once realised, it would facilitate **professional movement, streamlined visas, and faster extradition processes.**
- **Indian diaspora in the UK:**
  - A **critical pillar of bilateral ties**, the British Indian community own 65,000 companies in the UK and have the highest average earnings and highest employment levels (75%).
  - **They are valued in every sector** — business, industry, academia and science, politics, literature and the arts — acting as a **bridge of goodwill** between the two nations.

### Challenges, Sensitivities and Way Forward:

- **Challenges:** Despite shared democratic values and mutual interests, **vested interests and domestic political narratives** occasionally attempt to derail the partnership through **misinformation and political friction.**
  - **Way Forward:**
    - **Sustaining momentum:** Requires diplomatic sensitivity, policy consistency, and public diplomacy.
    - **Fast-track CETA implementation:** To realise trade and investment potential.
    - **Deepen defence-industrial collaboration:** Through technology transfers and joint production.
    - **Migration and Mobility Partnership:** Ensure full operationalisation.
    - **Enhance cooperation in emerging domains:** AI, green energy, and resilient infrastructure.
    - **Leverage diaspora networks:** For innovation, education, and entrepreneurship.
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### PM SURYA GHAR MUFT BIJLI YOJANA



- It was launched on February 15, 2024, and aims to provide free electricity to households in India.
- Under the scheme, **households will be provided** with a **subsidy to install solar panels** on their roofs.
- **Components of PM Surya Ghar Muft Bijli Yojana**
  - The scheme provides for a **subsidy of 60% of the solar unit cost** for systems up to **2 kW capacity** and **40 percent of additional system cost** for systems between **2 to 3 kW capacity**.
  - The subsidy has been capped at **3 kW capacity**.
  - One of the components of the scheme is the development of **Model Solar Village** in each district of the country.
  - Under the component **Incentives to Local Bodies**, the scheme has provision of providing an incentive at **Rs 1,000 per rooftop solar installation** in the respective jurisdiction of the **Urban Local Bodies (ULBs)** and **Panchayat Raj Institutions (PRIs)** at the Gram Panchayat level.
- **Eligibility criteria for PM Surya Ghar Muft Bijli Yojana**
  - The household must be an **Indian citizen**.
  - The **household must own a house** with a roof that is suitable for installing solar panels.
  - The household must have a **valid electricity connection**.
  - The household must not have availed any other subsidy for solar panels.

**Implementing agency:** It is implemented by a **National Programme Implementation Agency (NPIA)** at the National level and by the **State Implementation Agencies (SIAs)** at the state level.



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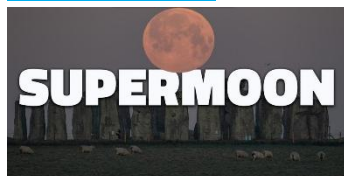
### ONLINE NATIONAL DRUGS LICENSING SYSTEM (ONDLS) PORTAL



Online National Drugs  
Licensing System  
(ONDLS) Portal

- It is a **digital, single-window platform** for processing various drug-related licences in India.
- It is developed by the Centre for Development of Advanced Computing (CDAC) in coordination with the Central Drugs Standard Control Organisation (CDSCO), Directorate General of Health Services, Ministry of Health and Family Welfare, and State/UT Drugs Regulatory Authorities.
- It is designed to create a **uniform, transparent, and accountable process** for drug licensing across all States and Union Territories.
- It handles applications submitted by the applicants for issuance of manufacturing and sales licenses, including Blood Banks, and other certificates like COPP, GMP, WHO-GMP, Market Standing certificate, , and post-approval changes.
- ONDLS will help in the establishment of **uniformity w.r.t. the requirement of submission of documents** for different types of applications as well as issuance of licenses/permissions throughout India.

### SUPERMOON



- A supermoon occurs when a **full moon or new moon** coincides with the **perigee** or moon's closest approach to the earth in its elliptical orbit.
- Because the moon's orbit is not a perfect circle, its distance from the earth varies throughout the month by around 50,000 km.
- When the moon is **near its perigee** and also directly opposite the sun, the **full moon appears** about 14% larger and 30% brighter than when it is at its farthest point.
- The term "Supermoon" was coined by **astrologer Richard Nolle in 1979**, defining it as a special event when a full moon is within 90 percent of its closest point to Earth.



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### Impact of Supermoon

- Supermoons influence **the tides, creating perigean spring tides.**
  - These tides are slightly higher and lower than usual because the moon's stronger gravitational pull acts in concert with that of the sun.
  - These changes are typically modest, they can **exacerbate coastal flooding** when combined with storm surges.
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### NANGAL WILDLIFE SANCTUARY



- It is a protected area located in the **foothills of the Shivalik Hills** in the Rupnagar district, in the state of **Punjab**.
  - Established as a sanctuary in 2009, it was designated a **Ramsar site** in 2019.
  - It spans an area of 116 hectares and forms a **part of the larger Nangal Wetland**, situated on the **banks of the Sutlej**
  - It **occupies a human-made reservoir** constructed as part of the **Bhakra-Nangal Project** in 1961.
  - The site is of historic importance, as the **Indian and Chinese Prime Ministers formalized the "Five Principles of Peaceful Coexistence"** there in 1954.
  - It supports rich biodiversity, including over **150 bird species** and several threatened animals such as the **Indian pangolin, Egyptian vulture, and leopards.**
  - This sanctuary is a **crucial migratory stopover** for many bird species, particularly **waterfowl.**
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