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Aluminium-air Batteries

- State-owned Indian Oil Corporation Ltd. has entered into a joint venture with Israel-based battery technology start-up Phinergy to develop aluminium-air technology based battery systems.
- These batteries utilise oxygen in the air which reacts with an aluminium hydroxide solution to oxidise the aluminium and produce electricity.
- These batteries are said to be a lower cost and more energy-dense alternative to lithium-ion batteries, which are currently in use in India.
- These batteries can be used for electric vehicles and stationary storage, as well as hydrogen storage solutions.
- One of the key downsides of aluminium-air batteries is that they cannot be recharged like lithium-ion batteries. So, large scale use of these battery based vehicles requires several battery swapping stations.
- Aluminium plates in aluminium-air battery is converted into aluminium trihydroxide over time and that aluminium can be reclaimed from aluminium trihydroxide or even traded directly for industrial uses.

SAAMAR Campaign

- Jharkhand government launched the SAAMAR (Strategic Action for Alleviation of Malnutrition and Anaemia Reduction) campaign to tackle malnutrition in the state.
- SAAMAR campaign aims to identify anaemic women and malnourished children through Anganwadi Centres, and subsequently they will be treated at the nearest Malnutrition Treatment Centre.
- The campaign converges various govt. departments and engagement with school management committees, gram sabhas among others.
- It has been launched with a 1000 days target, under which annual surveys will be conducted to track the progress.
- It also tries to target Primarily Vulnerable Tribal Groups (PVTGs).
- SAMAAR will capitalize on the Tejaswini Project functioning in the 17 districts of the state where youth communities of adolescent girls and women are being trained in various skills, entrepreneurship and for jobs.
- All these adolescent girls and women will be educated on nutritional behaviour, and will be given a health and nutrition card.

Diatom Test

- Maharashtra Anti-Terrorism Squad (ATS) relied on a diatom tests for leads in the alleged murder case of Mansukh Hiran.
- Diatom test helps in diagnosing the death caused by drowning. It tests diatoms in the body being tested.
- Diatoms are photosynthesizing algae found in aquatic environment including fresh and marine waters, soils, etc., (almost anywhere moist).
- If the person is **alive** when he enters the water, the diatoms will enter the lungs when the person inhales water while drowning. These diatoms are then carried to different body parts by blood circulation.
- If a person is **dead** when is thrown in the water, then there is no circulation and there is no transport of diatom cells to various organs.
- **Positive** - Diatom analysis is considered positive only when the number of diatoms recovered from the body is more than a minimal limit.
- Diatoms extracted from the body would be correlated with the samples from the water body where the drowning took place to ascertain the place of drowning.
- **Negative** - The test will be negative if the person died instantly after falling into the water.
- Diatom test is reliable unless and until the deceased person has been drinking water from the same source of water before his death.

Butea monosperma

- Butea monosperma tree is now in bloom across the Nilgiris. Generally, they bloom from January to March.
- Native to India, this small to medium sized deciduous tree wear more flowers than leaves. Flowers are bright orange with a unique petal shape, hence called **'flame of the forest**.'
- Each flower consists of five petals with a very curved beak-shaped keel. This keel gives it the name, **Parrot Tree**.
- In Manipur, when a member of the Meitei community dies, and his body cannot be found, the wood of this tree is cremated in place of the body.
- A postal stamp was issued by the Indian Postal Department to commemorate this flower.
- Also known as **Bastard teak,** this tree is widely grown in South Asia, and has multiple purposes, with a range of medicinal and other uses.

3D-printed Clay Seabed

- 3D printed tiles that work as an artificial clay seabed for corals to latch onto and thrive, is used to restore Hong Kong's fragile coral reefs.

- Around 84 species of coral are found in Hong Kong's waters, more diverse than those found in the Caribbean Sea.
- Providing suitable ground for the coral larvae to latch onto and build a new home will help in repopulating a dead or damaged reef.
- The coral fragments on the tiles definitely survive better than the traditional way of transplantation.
- Tiles used in this project are made with **terracotta**. Clay is basically soil, and it is found everywhere on earth. So, water chemistry is unchanged.

Corals

- Corals are colonies of living polyp invertebrates and are hugely sensitive to temperature changes.
- When they get too hot, they lose their vibrant colour and die.
- Australia's Great Barrier Reef is the world's largest coral system.
- It is now so badly damaged that it is listed by the International Union for Conservation of Nature (IUCN) as "critical", the worst category.
- Some subtropical corals thrive in warmer oceans because they form harder colonies, compared with their tropical corals.

Digital Green Certificates

- The European Commission proposed to create a Digital Green Certificate to facilitate the safe and free movement of citizens within the European Union (EU) amid the COVID-19 pandemic.
- This certificate proves that a person has been vaccinated against covid-19, or has received a negative test result or has recovered from covid-19.
- This digital or paper format certificate with a QR code will be free of charge. It can be issued by authorities, including hospitals, testing centres and health authorities.
- Once the proposal for digital certificates is finalised, it will be accepted in all EU countries.
- All EU citizens or third-country nationals who are legally staying in the EU can use these certificates to be exempted from free movement restrictions.
- If an EU member country requires a person to quarantine or undergo a test, it must notify the Commission and all other member states justifying its decision.
- When it comes to waiving free movement restrictions, Member States will have to accept vaccination certificates for vaccines which received EU marketing authorisation.

Equinox

- During Equinox, the Sun will be directly above the equator, in the middle of the two arcs traced by the Sun in the summer and winter.
- Caused due to the Earth's axis is tilted, there are two equinoxes in a year.
    1. Around 20 March - Vernal equinox or March equinox, also known as the spring equinox in the northern hemisphere.
    2. Around 22 or 23 September - Autumnal equinox.
- The word "equinox" comes from the Latin words aequus (equal) and nox (night). As it turns out, this is only approximately true.
- Day and night are not exactly equal length on the equinox, and there are two reasons for this.
- **Sun has a size** and it is not just a point. Sunrise starts when the upper edge of the Sun meets the eastern horizon, and sunset ends when the upper edge of the Sun sinks below the western horizon.
- Because of this the equinox has a slightly longer day than night.
- **Earth's atmosphere refracts (bends) sunlight**. When light passes from one medium to another, its path changes.
- Sunlight travels through the vacuum of space, and when it travels through Earth's comparatively denser atmosphere, it bends.

Source: The Hindu, The Indian Express, Down To Earth

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