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Renewable Energy Management Centers

- Union Power Ministry has inaugurated eleven new 'Renewable Energy Management Centers' (REMC).
- These REMCs will make it possible for the country to have more of renewable energy, particularly wind.
- REMC is a "hub for all information regarding renewable energy power generation", which would have a "dedicated team for managing forecast RE generation, dispatch and real-time monitoring to ensure safe, secure and optimal operation of the grid".
- Public sector major Power Grid Corporation of India is overseeing the setting up of these REMCs on behalf of the Ministry of Power.
- One REMC will come up in the National Load Dispatch Centre, three in as many Regional Load Dispatch Centers and seven in the State Load Dispatch Centers of Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Madhya Pradesh, Gujarat and Rajasthan.
- Load dispatch centers are like the control room that oversees how much and where the electricity is coming from and whom it should go to.
- REMCs are a unit of load dispatch centers that keep an eye on renewable energy plants.
- These centers will essentially perform three functions:

1. Forecasting of renewable energy from each plant.
2. Scheduling of renewable energy to customers.
3. Tracking of generation from the RE plants.

Raman Effect

- The Raman Effect won scientist Sir CV Raman the Nobel Prize for physics in 1930.
- It was also designated as an International Historic Chemical Landmark jointly by the American Chemical Society (ACS) and the Indian Association for the Cultivation of Science (IACS).
- In 1928, Raman discovered that when a stream of light passes through a liquid, a fraction of the light scattered by the liquid is of a different color.
- Raman conducted his Nobel-prize winning research at IACS, Calcutta.

- Raman was able to show that the blue color of the water was due to the scattering of the sunlight by water molecules.
- In general, when light interacts with an object, it can either be reflected, refracted or transmitted.
- One of the things that scientists look at when light is scattered is if the particle it interacts with is able to change its energy.
- The Raman Effect is when the change in the energy of the light is affected by the vibrations of the molecule or material under observation, leading to a change in its wavelength.
- In 1986, the Government of India designated February 28 as National Science Day, to commemorate the announcement of the discovery of the "Raman effect".

Red Snow

- "Red snow" or "watermelon" is a phenomenon that has been known since ancient times, now it raises concerns about climate change.
- Chlamydomonas Chlamydomonas nivalis, exists in snow in the polar and glacial regions, and carries a red pigment to keep itself warm.
- It is the algae that give the snow its red tinge, it causes the surrounding ice to melt faster.
- The more the algae packed together, the redder the snow and the darker the tinge, the more the heat absorbed by the snow. Subsequently, the ice melts faster.
- While the melt is good for the microbes that need the liquid water to survive and thrive, it's bad for glaciers that are already melting from a myriad of other causes, the study said.
- These algae change the snow's albedo which refers to the amount of light or radiation the snow surface is able to reflect back, Changes in albedo lead to more melting.
- In the melting of snow in the Arctic, the key drivers have been snow and ice albedo, according to a 2016 study in the journal Nature.
- Aristotle is believed to be one of the first to give a written account of red snow, over 2,000 years ago.

Henneguya salminicola

- Researchers have discovered a non-oxygen breathing animal, which significantly changes one of science's assumptions about the animal world that all animals use aerobic respiration and therefore, oxygen.
- It also challenges what may be generally thought of as evolution in

organisms that they become more complex as they evolve.

- In the case of this non-oxygen breathing organism, evolution turned it into a simpler organism that shed “unnecessary genes” responsible for aerobic respiration.
- The organism Henneguya salminicola, a fewer-than-10-celled microscopic parasite that lives in salmon muscle.
- According to the researchers, as the organism evolved, it gave up breathing and stopped the consumption of oxygen for the production of energy which means it relies on anaerobic respiration (through which cells extract energy without using oxygen).
- Other organisms such as fungi and amoebas that are found in anaerobic environments lost the ability to breathe over time.
- The new study shows that the same can happen in the case of animals, too.
- Henneguya salminicola did not have a mitochondrial genome.
- Mitochondria is the “powerhouse” of the cell, which captures oxygen to make energy its absence in the H. salminicola genome indicates that the parasite does not breathe oxygen.

Aerobic Respiration

- Animals, including humans, need energy to perform the various tasks that are essential for survival.
- Aerobic respiration is one such chemical reaction through which organisms take in oxygen and release carbon dioxide into the atmosphere.
- Through this mechanism, energy is transferred to cells, which can use it for multiple purposes for instance, to burn food.

Mini-Moon

- Astronomers have observed a small object orbiting Earth, which they have dubbed a “mini-moon” or the planet’s “second moon”.
- It is actually an asteroid, about the size of a car, with a diameter of about 1.9-3.5 m.
- Unlike our permanent Moon, the mini-moon is temporary, it will eventually break free of Earth’s orbit and go off on its own way.
- Dubbed 2020 CD3, the mini-moon was discovered by NASA-funded Catalina Sky Survey (CSS).
- CSS previously discovered 2006 RH120, which orbited Earth for some time that year, before it escaped in 2007.
- The Minor Planet Center of the International Astronomical Union

acknowledged the discovery.

- When an asteroid's orbit crosses Earth's orbit, it can sometimes be captured into the latter orbit, this is what happened with 2020 CD3.
- It is now orbiting at a distance farther from Earth, Such an asteroid is called a Temporarily Captured Object (TCO).
- The orbit of such objects is unstable and they have to contend with the gravitational influence of our permanent Moon as well as that of the Sun.
- Once caught in Earth's orbit, such objects usually remain for a few years before they break free and go into independent orbit around the Sun.

RAISE 2020

- Union government recently announced it will hold RAISE 2020- 'Responsible AI for Social Empowerment 2020' summit in New Delhi.
- The summit will be aimed at bringing together people to exchange ideas on the use of Artificial Intelligence for "social empowerment, inclusion and transformation" in industries such as education, smart mobility, agriculture, and healthcare among others.

Startup Pitch fest

- "Startup Pitch fest" is planned to host along the RAISE 2020 summit.
- During the summit, startups will have the opportunity to showcase their AI solutions aimed at the social transformation, inclusion and empowerment.
- Interested startups around the world can participate in the Pitch fest.
- The finalists will showcase their solutions at the summit and even get live feedback.

Source: Indian Express, Business Line, Hindustan Times

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