UPSC Daily Current Affairs | Prelim Bits 09-01-2020

GST Council Voting

- The GST Council is a federal body that aims to bring together states and the Centre on a common platform for the nationwide rollout of the indirect tax reform.
- The rules of voting in the GST Council are such that the odds are stacked in favour of the Centre in the normal course.
- However, in case of a vote, any disagreements within the ruling coalition at the Centre may bring its support below the three-fourths majority that is needed for the passage of a decision.
- So far 37 GST council meeting has followed consensus-based decisions for the first time the 38th council voted.
- As per The Constitution (One Hundred and First Amendment) Act, 2016, in case of a voting, every decision of the GST Council has to be taken by a majority of not less than three-fourths of the weighted votes of the members present.
- The vote of the central government has a weightage of one-third of the total votes cast, and the votes of all the state governments taken together have a weightage of two-thirds of the total votes cast in that meeting.

Goldilocks zone

- A habitable zone, also called the “Goldilocks zone”, is the area around a star where it is not too hot and not too cold for liquid water to exist on the surface of surrounding planets.
- Obviously, our Earth is in the Sun’s Goldilocks zone.
- If Earth were where the dwarf planet Pluto is, all its water would freeze; on the other hand, if Earth were where Mercury is, all its water would boil off.

TOI 700 d

- Recently NASA reported the discovery of an Earth-size planet, named TOI 700 d, orbiting its star in the “habitable zone”.
- TOI 700 d measures 20% larger than Earth.
- It orbits its star once every 37 days and receives an amount of energy that is equivalent to 86% of the energy that the Sun provides to Earth.
- The newest such planet was found by NASA’s Transiting Exoplanet Survey

Satellite (TESS) mission, which it launched in 2018.
- Very few such Earth-size planets have been found so far, including some by NASA's Kepler mission, and this one is the first such discovery by TESS.

Venus Volcanoes

- New research suggests that the Earth's sister planet Venus has active volcanoes.
- According to the study lava flows on Venus may be only a few years old.
- This suggests that Venus could be volcanically active today, making it the only planet in our solar system, other than Earth, with recent eruptions.
- The Visible Infrared Thermal Imaging Spectrometer (VIRTIS) on the Venus Express orbiter has measured the amount of infrared light emitted from part of Venus' surface during its nighttime, shedding new light on volcanism on the planet.
- This allowed scientists to differentiate the fresh lava flows on the surface of Venus from the older ones.
- Earlier, the ages of lava eruptions and volcanoes on Venus could not be identified because the alteration rate of fresh lava was not well constrained.
- The new research led by Universities Space Research Association (USRA) has used data from the European Space Agency's (ESA's) Venus Express orbiter to confirm that the lava flows are recent and Venus could have currently active volcanoes.

Polar Science Co-operation

- Ministry of Earth Sciences (MoES), India and Ministry of Education and Research, Sweden has signed an agreement on cooperation in polar science.
- India and Sweden are both signatories to the Antarctic Treaty and to the Protocol to the Antarctic Treaty on Environmental Protection.
- Sweden as one of the eight "Arctic States" is one of the Member State in the Arctic Council whereas India has the Observer Status in the Arctic Council.
- Sweden has a vigorous scientific program in the Polar Regions, both in Arctic and Antarctic.
- India likewise, has sustained scientific research programs in both the Polar Regions as well as in the oceanic realm.
- The collaboration between India and Sweden in polar science will enable sharing of the expertise available with both Countries.

Migration and Mobility Partnership Agreement

- Union cabinet has approved the ratification of Migration and Mobility Partnership Agreement between India and France

- The Agreement was actually signed in March, 2018 during the State Visit of the French President to India.
- The Agreement represents a major milestone in enhancing people-to-people contacts, fostering mobility of students, academics, researchers and skilled professionals and strengthening cooperation on issues related to irregular migration and human trafficking between the two sides.
- The Agreement is initially valid for a period of seven years, incorporates provision for automatic renewal and a monitoring mechanism through a Joint Working Group.

Lithium Sulfur (Li-S) Battery

- Researchers from Australia have claimed that they have developed the world's most efficient lithium-sulfur (Li-S) battery.
- It is capable of powering a smartphone for five continuous days, the equivalent of an electric car being able to drive a distance of over 1,000 km.
- Li-S battery has an "ultra-high capacity" and has better performance and less environmental impact.
- This means that they may be able to outperform the Li-ion batteries by more than four times.
- With Li-ion batteries, some disadvantages include their susceptibility to overheating and their being prone to damage at high voltages.
- Such batteries also start losing their capacity over time — for instance, a laptop battery in use for a few years does not function as well as a new one.
- While the materials used in the Li-S batteries are not different from those in Li-ion batteries, the researchers have reconfigured the design of the sulfur cathodes (a type of electrical conductor through which electrons move) to accommodate higher stress without a drop in overall capacity
- Li-S batteries are considered as the successors of the Lithium-ion (Li-ion) batteries because of their lower cost of production, energy efficiency and improved safety.
- Their cost of production is lower because sulfur is abundantly available.

Source: PIB, Indian Express

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