Prelim Bits 16-04-2019

Origin of life from Ponds

- According to a recent study, primitive ponds may have provided a suitable environment for creating the earth's first life forms, more so than oceans.
- Shallow water bodies could have held high concentrations of nitrogen, a key ingredient for jump-starting life on the earth.
- Nitrogenous oxides were likely deposited in water bodies, including oceans and ponds, as remnants of the breakdown of nitrogen in earth's atmosphere.
- Atmospheric nitrogen comprises two nitrogen molecules, linked via a strong triple bond that can only be broken by an extremely energetic event namely, lightning.
- In the ocean, UV light and dissolved iron would have made nitrogenous oxides far less available for synthesizing living organisms.
- In shallow ponds, however, life would have had a better chance to grow, mainly because ponds have much less volume over which compounds can be diluted.
- As a result, nitrogenous oxides would have built up to much higher concentrations in Ponds.

Mariana Trench

- The Mariana Trench is located in the western Pacific Ocean and has the deepest natural trench in the world.
- It is a crescent-shaped trough in the Earth's crust averaging about 2,550 km long and 69 km wide.
- The maximum known depth is 10,994 meters (36,070 ft) at the southern end of a small slot-shaped valley in its floor known as the Challenger Deep.
- For comparison: if Mount Everest were dropped into the trench at this point, its peak would still be over two kilometres (1.2 mi) under water.
- The trench is not the part of the seafloor closest to the centre of the Earth since the Earth is not a perfect sphere.
- Recently scientists have discovered a unique oil-eating bacteria in the Mariana Trench.

- The found microorganisms eat compounds similar to those in oil and then use it for fuel.

3D- Printed Heart

- Recently Scientists have unveiled a 3D print of a heart with human tissue and vessels.
- This invention is a major medical breakthrough that advances possibilities for transplants in near future.

Maternal Spindle Transfer

- Fertility doctors in Greece and Spain have produced a baby from three people in order to overcome a woman's infertility, the team used a technique called maternal spindle transfer (MST).
- It was developed to help families affected by deadly mitochondrial diseases which are passed down from mother to baby.
- The experimental form of MST uses an egg from the mother, sperm from the father, and another egg from a donor woman.
- All cells have mitochondria, which are like power packs for the cells and create the energy that keeps cells alive.
- While a child's DNA is a mixture from both the mother and father, mitochondria are separate "packages of genetics" that come solely from the mother.
- Some people have a mitochondrial disease a problem with the genetics in their mitochondria which can lead to severe, life-threatening conditions, although this is rare.
- One treatment for a woman who might have one of these diseases is to replace the mitochondria in her eggs via IVF.

Saraswati Samman

- Saraswati Samman is the annual award given to an outstanding literary work in any Indian language mentioned in Schedule VIII of the Constitution and published in 10 years preceding the specified award year.
- It is the highest recognition in the field of Indian literature in the country and carries a citation, a plaque and award money of ₹15 lakh.
- The award is presented by the KK Birla Foundation, a literary and cultural

organization.

Central Monitoring Committee on Pollution

- National Green Tribunal (NGT) has formed a Central Monitoring Committee to prepare and enforce a national plan to make over 350 river stretches across the country pollution free.
- The Chairman of the Central Pollution Control Board (CPCB) will be the nodal authority for coordination.
- The Chief Secretaries of the states will act as the nodal agency at the state level.
- The committee has been composed to monitor pollution of rivers, as it has caused a serious threat to the safety of water and environment.
- Besides checking river pollution, the central monitoring committee will coordinate with the River Rejuvenation Committees of the states and oversee the execution of the action plans.

Source: PIB, the Hindu, Down to Earth, Indian Express

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