

KSG:NEWSPAPER CRUX

21ST MARCH, 2021

NEWSPAPER HIGHLIGHTS

- The hummingbird gets its name from the sound it makes when it hovers in front of flowers to feed. The humming sound is generated by the bird's wings. A new study (published in eLife) noted that the wings beat rapidly at 40 beats per second. The hum originated from the pressure difference between the topside and underside of the wings.
- NASA's Insight spacecraft which is located on Mars has made an estimate of the size of the Martian core. It finds that Mars's core is about half the size of Earth's core and measures between 1,810 and 1,860 kilometres. Insight scientists infer that the core must contain, in addition to iron and sulphur, lighter elements like oxygen. The study will help understand the way Mars evolved.
- Researchers have induced human stem cells to self-organise and form a human blastocyte – an early stage of the formation of a human embryo. One group started from human embryonic stem cells and induced pluripotent stem cells that are derived from adults, the other group started with adult skin cells called fibroblasts (Nature).
- Helium is colourless, odourless, tasteless, inert and a noble gas. Yet, it finds many applications, mainly in magnetic resonance imaging (MRI) scans, in rockets and in nuclear reactors. India imports helium for its needs, and with the U.S. appearing set to cut off exports of helium since 2021, Indian industry stands to lose out heavily.
- Since the first detection of the merger of black holes dated September 14, 2014, by the two gravitational wave detectors at LIGO in the U.S., the field has witnessed important developments. Gravitational waves from distant events may form a constant background signal.

REFRIGERATION SYSTEM PUSA-FSF

1. Scientists from the ICAR-Indian Agricultural Research Institute (IARI) have developed an on-farm green energy refrigeration system (Pusa-FSF) and a technology for extraction of gluten from wheat dough and its regeneration in bajra (pearl-millet) and makka (maize) flour.
2. **Pusa Farm Sun Fridge (Pusa-FSF) is a 100% solar-powered battery-less cold store that can preserve around 2 tonnes of freshly-harvested produce** at 3-4°C during the day and 8-12°C at nighttime.
3. It has rooftop solar panels that generate 5 kilowatt (KW) power, which helps in running air conditioning. **The panels also power a 105-watt submersible pump circulating** about 1,000 litres of water from a tank through overhead PVC pipes.
4. All farmers with solar pumps are a potential market for the Pusa-FSF. India has an estimated four lakh-plus installed solar water pumps.

US INDIA ARTIFICIAL INTELLIGENCE INITIATIVE

1. Recently, US India Artificial Intelligence (USIAI) initiative has been launched to scale up the science and technology relationship between India and the United States.
2. **US India Artificial Intelligence (USIAI) is an initiative of Indo-US Science and Technology Forum (IUSSTF) which was established in March 2000.**
3. It will bring together key stakeholders from India and the United States to create synergies that address challenges and opportunities at the interface of science, technology, and society.
4. India has launched **National AI Strategy (NITI Aayog) and National AI Portal (Ministry of Electronics and Information Technology) and has also started leveraging AI** across various sectors such as education, agriculture, healthcare, e-commerce, finance, telecommunications, etc.

SUPPLEMENTARY DEMAND FOR GRANTS

1. The Lok Sabha has passed supplementary demand for grants for the second batch (2020-2021). It is needed when the amount authorised by the Parliament through the appropriation act for a particular service for the current financial year is found to be insufficient for that year.
2. This grant is presented and passed by the Parliament before the end of the financial year. Constitutional Provisions: **Article 115** pertains to supplementary, additional or excess grants.
3. Other Grants: Additional Grant, Excess Grant, Vote of Credit, Exceptional Grant, Token Grant.
3. **Article 116** of the Constitution pertains to Votes on account, votes of credit and exceptional grants. Supplementary, additional, excess and exceptional grants and vote of credit are regulated by the same procedure which is applicable in the case of a regular budget.

OPEN MARKET OPERATIONS BY RBI

1. The Reserve Bank of India (RBI) has decided to conduct simultaneous purchase and sale of government securities (G-Sec) under Open Market Operations (OMOs) for an amount of Rs. 10,000 crore each.
2. Simultaneous purchase and sale of government securities under OMOs, **popularly known as operation twist, involves purchasing G-Sec of longer maturities and selling equal amounts of G-Sec of shorter maturities.**
3. Impact on Money Supply: When RBI buys a Government bond in the open market, it pays for it by giving a cheque.