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Ways and Means Advances (WMAs)

- The Reserve Bank of India (RBI) gives temporary (short-term) loan facilities to the central and state governments, it is called Ways and Means Advances (WMA).
- The Ways and Means Advances scheme was introduced in 1997, to meet mismatches in the receipts and payments of the government.
- These are given at the repo rate, which is 4.40 per cent.
- The government can avail of immediate cash from the RBI, if required.
- But it has to return the amount within 90 days, interest is charged at the existing repo rate.
- If the WMA exceeds 90 days, it would be treated as an overdraft (interest rate on overdrafts is 2 percentage points more than the repo rate).
- The limits for Ways and Means Advances are decided by the government and RBI mutually and revised periodically.
- There are two types of Ways and Means Advances — normal and special.
- **Special WMA or Special Drawing Facility** is provided against the collateral of the government securities held by the state.
- After the state has exhausted the limit of SDF, it gets normal WMA.
- The interest rate for SDF is one percentage point less than the repo rate.
- The number of loans under normal WMA is based on a three-year average of actual revenue and capital expenditure of the state.
- Enhancement of WMA limit will provide immediate cash in the hands of states to undertake the crisis related expenditures.
- However, there will be a need for a fiscal side support to the states by way of a fiscal stimulus fund.
- Recently RBI increased the limit by 60 per cent above the level as of March 31, 2020, this new limit is available till September 30, 2020.

Targeted Long Term Repo Operation (TLTRO)

- LTRO is a tool that lets banks borrow one to three-year funds from the central bank at the repo rate, by providing government securities with similar or higher tenure as collateral.
- This helps banks get funds for a longer duration as compared to the short-

term (up to 28 days) liquidity provided by the RBI through other tools such as liquidity adjustment facility (LAF) and marginal standing facility (MSF).

- It is called 'Targeted' LTRO as in this case, the central bank wants banks opting for funds under this option to be specifically invested in investment-grade corporate debt
- LTROs provide banks with access to cheaper capital from the RBI.
- This, in turn, encourages them to lend more and spur economic activity.
- They can also invest these long-term funds in assets that yield better returns to improve profitability.
- Also, as banks provide government securities as collateral, the demand for such government bonds increases and helps in lowering yield.
- RBI stipulated that small and mid-sized NBFCs and micro-finance institutions (MFIs) should receive at least 50% of these funds.
- Banks can avail ₹50,000 crore through the targeted long-term repo operation.
- Under which, banks have to invest the funds availed under targeted long-term repo operation (TLTRO), in investment grade bonds, commercial paper, and non-convertible debentures of NBFCs.
- These investments have to be made within one month of availing liquidity from the RBI.
- Investments made by banks under this facility would be classified as 'held-to-maturity' (HTM), even in excess of 25% of the total investment permitted to be included in the HTM portfolio.
- The regulator has also allowed non-banking institutions to extend the date for commencement for commercial operations (DCCO) by an additional one year, without treating the same as restructuring, if the project is delayed due to reasons beyond the control of the promoter.

Pseudo Capacitors

- Scientists develop stable material for pseudo capacitors which store electrical energy by electron charge transfer
- Scientists at the Institute of Nano Science and Technology (INST) have developed a stable material for pseudo capacitors or super capacitors which store electrical energy by electron charge transfer.
- The material can offer a low-cost scalable energy storage solution as an alternative to batteries.
- INST have formulated an interesting synthetic strategy to overcome the long-standing challenges of pseudo capacitors, their cycling stability, and rate capability.

- Pseudo capacitors are a type of super capacitors which store electrical energy by electron charge transfer.
- The pseudo capacitive material discovered recently is a hybrid xerogel structure (a solid formed from a gel by drying with unhindered shrinkage), for the very first time.
- The hybrid material was fabricated by the integration of a well-known organic molecule, dopamine onto a conductive matrix, like graphene.
- This class of xerogel architectures, although reported in the literature as alternatives to conventional pseudo capacitors, lack sufficient cycling stability to replace batteries in the consumer market.

Institute of Nano Science and Technology (INST)

- Institute of Nano Science and Technology (INST) is an autonomous institution of Department of Science and Technology (DST).
- It is located at Mohali (Punjab).
- It has been established under the umbrella of NANO MISSION, initiated by DST to boost research and development in the field of Nanoscience and Nanotechnology in India.

B814 Virus

- The first human coronavirus was discovered in 1965 by scientists DJ Tyrell and ML Bynoe, years after the disease was found in animals.
- They isolated a virus from the nasal washings of a male child who had symptoms and signs of a common cold.
- It was found that the washings were able to induce common colds in volunteers intranasally.
- The duo called the virus B814, and found that while they were able to cultivate the virus in human embryo tracheal organ tissue, they were unable to do so in routine cell lines.
- At the time of delivery, B814 strain was a virus virtually unrelated to any other known virus of the human respiratory tract.

June Almeida

- June Almeida was a UK based virologist who visualized the first human coronavirus.
- Almeida was also responsible for the first visualization of the rubella virus.
- She was also instrumental in figuring out that there are two distinct components of the Hepatitis-B virus, one on the surface of the particle, and one internally.

- She went on to not only identify viruses whose structures were previously unknown, but her work also shed light on the pathogenesis of viral infections.
- She pioneered the technique of electron microscopy, used for viral diagnosis, and became the first individual to see the human coronavirus.
- She was also one of the contributors who helped shape the World Health Organization's (WHO) 1979 manual for rapid laboratory viral diagnosis.
- In 1967, Almeida collected the samples of B814 and attempted to visualize them using a microscope, through a technique she pioneered called electron microscopy.
- She found the virus in the samples were morphologically identical to the viruses of avian bronchitis and mouse hepatitis.
- She called it the "coronavirus" due to the protrusions on its surface which made it look like an emperor's crown, the name was accepted a year later in 1968.

Source: Business Standard, the Hindu, Indian Express

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