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Model Tenancy Act

- The Union Cabinet, chaired by Prime Minister, approved the Model Tenancy Act (MTA) to be sent to the States and Union Territories to enact legislation or amend laws on rental properties.
- The MTA would prescribe the norms for lease agreements, deposits, dispute handling and other aspects of rental properties.
- The Act will be applicable prospectively and won't affect the existing tenancies.
- It would set up separate rent authorities, courts and tribunals in each district to settle disputes.
- It also makes it mandatory for there to be a written agreement between the property owner and the tenant. It would be submitted to the concerned district 'Rent Authority'.
- It puts a maximum limit for security deposits paid by tenants at 2 months' rent for residential properties and 6 months' rent for non-residential spaces (Commercial property).
- Tenant will not be evicted during the continuance of tenancy agreement unless otherwise agreed to in writing by both the parties.
- **Significance** - The Act will create adequate rental housing stock for all the income groups thereby addressing the issue of homelessness.
- It will enable institutionalisation of rental housing by gradually shifting it towards the formal market.

China's Red Tourism

- As the Chinese Communist Party celebrates its 100th anniversary this year, the popularity of 'red tourism' is at an all-time high in the country and is bringing in huge revenues for China.
- Launched in 2004, Red Tourism involves visiting places that are of historical and cultural importance to the Communist Party's history, while also providing an impetus to tourism and local businesses.
- It reminds people of the sacrifices made by the leaders of the Communist

party to forge a modern China.

- Some of the famous sites covered by 'red tourism' are,
    1. Shaoshan - Birthplace of Mao;
    2. Yan'an - Mao Zedong's revolutionary base area where the Red Army arrived after the Long March;
    3. Jinggangshan where leading members of the Communist Party of China established their first rural base for the revolution in 1927;
    4. Nanchang (Capital city of Jiangxi Province) which witnessed a significant Uprising in 1927 led by Zhou Enlai and He Long;
    5. Nanhu Lake in China's Zhejiang, where the First National Congress of the Chinese Communist Party was held on a boat in 1921.

China's Artificial Sun 'EAST'

- China's "artificial sun" Experimental Advanced Superconducting Tokamak (EAST) has set a new record after it ran at 216 million degrees Fahrenheit (120 million degrees Celsius) for 101 seconds.
- For another 20 seconds, it achieved a peak temperature of 288 million degrees Fahrenheit (160 million degrees Celsius), which is over ten times hotter than the sun's core (15 million degrees Celsius).
- **EAST** - The China's EAST reactor is an advanced nuclear fusion experimental research device located at the Institute of Plasma Physics of the Chinese Academy of Sciences (ASIPP) in Hefei, China.
- EAST is one of three major domestic tokamaks that are presently being operated across the country. Other two are HL-2A reactor and J-TEXT.
- The EAST project, operational since 2006, is part of the International Thermonuclear Experimental Reactor (ITER) facility.
- **Working** - The EAST Tokamak device is designed to mimic the energy generation process of the sun. It replicates the process of nuclear fusion process carried out by the sun and stars.
- Also, in 2020, South Korea's KSTAR reactor set a record by maintaining a plasma temperature of 100 million degrees C for 20 seconds.

International Thermonuclear Experimental Reactor

- ITER is the world's largest experimental fusion reactor facility in France.
- It includes the contributions of several countries, including India, South Korea, Japan, Russia and the United States.
- To know more about International Thermonuclear Experimental Reactor (ITER), click here.

Quark-Gluon Plasma

- Smashing together lead particles at 99.9999991% the speed of the light, the first matter that appeared after the Big Bang has been recreated.
- This primordial type of matter is known as quark-gluon plasma, or QGP. This matter lasted only for a fraction of a second.
- For recreating QGP, scientists created the soup of energy (similarly to how it was immediately after the Big Bang) at the Large Hadron Collider (LHC), the world's largest atom smasher.
- By smashing heavy atomic nuclei together, a tiny fireball was created that effectively melts particles into their primordial forms for a fraction of a second.
- The scientists found the QGP was a perfect liquid - finding it to have less resistance to flow than any other known substance - and it also changed shape over time in a manner unlike other forms of matter.
- The scientists also determined how QGP evolved in the first moments in the early universe to form hadrons (such as protons, neutrons, etc).
- **Significance** - This study eventually could suggest how the early universe evolved in the first microsecond after the Big Bang.

After the Big Bang

- After the Big Bang, the universe was thought to be a soup of energy before it rapidly expanded during a period known as inflation, which allowed the universe to cool enough for matter to form.

- The first entities thought to emerge were quarks, a fundamental particle, and gluons, which carry the strong force that glues quarks together.

- As the universe cooled further, these particles formed subatomic particles called hadrons, some of which we know as protons and neutrons.

H10N3 Bird Flu

- A man in China’s Jiangsu province has been confirmed as the first human case of infection with a rare strain of bird flu known as H10N3.
- The WHO said while the source of the patient’s exposure to the virus was not known. Since no other cases were found among the local population, there was no indication of human-to-human transmission yet.
- H10N3 strain of avian influenza is a low pathogenic or relatively less severe strain of the virus in poultry and the risk of it spreading on a large scale was very low.
- **Spread** - Infected birds spread the virus through their saliva, mucus and

poop. Humans get infected when the virus gets in the eyes, nose or mouth, or is inhaled from infected droplets or dust.
- As long as avian influenza viruses circulate in poultry, sporadic infection of avian influenza will occur in humans.

Reassortment

- Flu viruses can mutate rapidly and mix with other strains circulating on farms or among migratory birds, known as “reassortment”.
- Reassortment means they could make genetic changes that pose a transmission threat to humans.

Other avian influenza viruses that can infect humans

- Currently, there are few avian influenza strains known to infect humans: H5, H7, and H9 - usually in the form of H5N1 and H7N9 viruses.
- While they are rare in the general population, these infections happen most commonly among those who work with poultry.
- The first human cases of the H5N1 virus infection were identified in Hong Kong in 1997.
- The first human cases of the H7N9 strain were reported in 2013. The last human epidemic of bird flu in China occurred in late 2016 to 2017 with the H7N9 virus.

Second Positive Indigenisation List

- The Defence Ministry notified the ‘Second negative import list’ - renamed as the ‘Positive Indigenisation List’ - of 108 items that can now be only purchased from indigenous sources.
- [The 'First Negative Indigenisation List’ (101 items) was notified in August 2020.]
- The second list takes the total number on the list to 209. It will be implemented with effect from December 2021 to December 2025.
- It lays special focus on weapons and systems which are currently under development/trials and are likely to translate into firm orders in the future.
- Like the first list, import substitution of ammunition which is a recurring requirement has been given special focus.
- The second list comprises complex systems, sensors, weapons and ammunitions like helicopters, Air Borne Early Warning and Control (AEW&C) systems, MRSAM weapon systems, etc.
- **Significance** - The list recognises the potential of local defence industry and also promotes defence exports.
- It will also invigorate impetus to domestic R&D by attracting fresh

investment into technology and manufacturing capabilities.
- It also provides an excellent opportunity for ‘start-ups’ as also Micro, Small and Medium Enterprises (MSMEs).

Source: The Hindu, The Indian Express, Times of India, Live Science, Health

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