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## **1. Aero India**

### **Why in News?**

- The Ministry of Defence has recently announced that the 13th edition of Aero India will be held from February 3 to 7, 2021 at Air Force Station Yelahanka (Karnataka).

### **About Aero India:**

- It is a biennial international military and civil air show.
- It is a premier event that draws international and Indian military and civil aircraft makers, their support industries, military brass and government dignitaries, and business visitors.
- The Yelahanka air base has been hosting the air show in February since it was started in 1996.
- In 2021, it will be organised by the Defence Exhibition Organisation, Ministry of Defence. In 2019 it was organised by Hindustan Aeronautics Ltd (HAL).

### **About Defence Exhibition Organisation:**

- It is an autonomous organisation of the Indian Government established in 1981.
- It was established to promote export potential of the Indian defence industry.
- It is responsible for organising international exhibitions such as DEFEXPO and Indian Participation at Overseas Exhibitions.

## **2. Janaushadhi Sugam Mobile App**

### **Why in News?**

- Amid nationwide lockdown due to COVID-19 crisis Janaushadhi Sugam Mobile App is helping people in a big way to locate their nearest Pradhan Mantri Bharatiya Janaushadhi Kendra (PMJAK) and availability of Affordable Generic Medicine with its Price.

### **Highlights:**

- Over 325000 people are using Janaushadhi Sugam Mobile App to avail the host of benefits provided by it.
- In order to make use of digital technology for easing the life of consumers, this mobile application for Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) has been developed by Bureau of Pharma PSUs of India (BPPI) under Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, Government of India.

- The App will Facilitate the General Public by Providing a Digital Platform at the tip of their Fingers, by the Virtue of which
  - ✓ They can avail a host of user-friendly options like locate nearby Janaushadhi kendra,
  - ✓ Direction guided through Google Map for location of the Janaushadhi kendra,
  - ✓ Search Janaushadhi generic medicines,
  - ✓ Analyze product comparison of Generic and Branded medicine in form of MRP & overall Savings, etc.

### **3. Scientists to make use of AI to solve nuclear fusion problem**

#### **Why in News?**

- Scientists believe the world will see its first working thermonuclear fusion reactor by the year 2025. That's a tall order in short form, especially when you consider that fusion has been here for nearly a century.
- Fusion reactors are the holiest of Grails when it comes to physics achievements. According to most experts, a successful fusion reactor would function as a near-unlimited source of energy.

#### **Highlights:**

- TAE, one of the companies working on the fusion problem, says the big difference-maker now is machine learning. According to a report from Forbes, Google's been helping TAE come up with modern solutions to decades-old math problems by using novel AI systems to facilitate the discovery of new fusion techniques.
- Fusion occurs naturally in stars such as our sun, but recreating the sun's conditions on Earth is simply not possible with our current technology.
- The sun is much more massive than the Earth, and that mass comes with the fusion friendly benefit of increased gravity.
- All that extra gravity smashes the sun's atoms into one another. The combination of pressure and heat force hydrogen atoms to fuse together, thus becoming helium atoms. This results in the expulsion of energy.
- Unfortunately, all the current terrestrial attempts at fusion have come up short because, though many have been successful at fusing atoms, they always take more energy to produce the temperatures required to fuse atoms on Earth than said atoms produce in the process.

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- The entry of AI and machine learning has made things interesting. By giving physicists “super human” analysis abilities, they can turn around experiments faster. This enables quicker iterations and more meaningful results.

### **Nuclear Fusion:**

- Nuclear fusion is a reaction in which two or more atomic nuclei are combined to form one or more different atomic nuclei and subatomic particles (neutrons or protons).
- The difference in mass between the reactants and products is manifested as either the release or absorption of energy.
- A fusion process that produces nuclei lighter than iron-56 or nickel-62 will generally release energy. These elements have relatively small mass per nucleon and large binding energy per nucleon.
- Fusion nuclei lighter than these releases energy (an exothermic process), while fusion of heavier nuclei results in energy retained by the Product Nucleons, and the Resulting Reaction is Endothermic.

## **4. COVID-19 and Sense of Smell**

### **Why in News?**

- Earlier this week, the US Centre for Disease Control and Prevention (CDC) introduced “a new loss of taste or smell” in a list of COVID-19 symptoms.

### **Highlights:**

- While loss of smell is a known symptom of several diseases, it is less common than hearing loss or vision loss, and patients become conscious of it later than they would notice a fever or body ache.
- People with COVID-19 have had a wide range of symptoms reported, ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus.
- People with these symptoms or combinations of symptoms may have COVID-19 — Cough and Shortness of breath or difficulty breathing.
- In addition, it lists symptoms that include fever, chills, repeated shaking with chills, muscle pain, headache, sore throat, and a new loss of taste or smell.
- If a patient has two or more of these symptoms, the CDC says there is a chance that the person has COVID-2019 infection.

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- Rhinology, ENT and otolaryngology experts have been pushing for inclusion of loss of smell, known as anosmia – in the list of symptoms for some time now.
  - Chills are associated with many other infections, such as malaria, and muscle pain and body ache are typically associated with common flu.
  - For these reasons, health experts have repeatedly noted that it is impossible to symptomatically differentiate between COVID-19 and the common flu.
  - Anosmia and hyposmia, the inability or decreased ability to smell, is estimated to afflict 3-20% of the population. Risk of olfactory dysfunction increases with old age and may also result from chronic sinonasal diseases, severe head trauma, and upper respiratory infections, or neurodegenerative diseases.
  - Other diseases with anosmia among its symptoms include Parkinson's disease, Alzheimer's disease and multiple sclerosis. In such cases, it is permanent.

