

Current Affairs search results for tag: science-and-technology

### **1. World's largest plant discovered off Australia's west coast ( June 3, 2022 )**

The world's largest plant has recently been discovered off the west coast of Australia, it is a sea grass with a length of 180 km.

- **About the plant**

- The name of the discovered plant is Posidonia australis or ribbon weed.
- It has been discovered in Shark Bay by a group of researchers from Flinders University and The University of Western Australia.
- Researchers have also found that the plant is 4,500 years old, is sterile, and has double the number of chromosomes than other similar plants.
- The plant has managed to survive in the volatile atmosphere of the shallow Shark Bay.

- **Plant's size**

- Posidonia australis covers an area of 20,000 hectares.
- The second largest plant, is the clonal colony of a quaking Aspen tree in Utah, which covers 43.6 hectares area.
- The largest tree in India is the Great Banyan in the Botanical Garden of Howrah which is spread over 1.41 hectares.
- The findings were published in the journal Proceedings of the Royal Society B.

### **2. PARAM ANANTA Supercomputer commissioned at IIT, Gandhinagar ( May 31, 2022 )**

A state-of-the-art supercomputer PARAM ANANTA under the National Supercomputing Mission (NSM), was dedicated to the nation at IIT Gandhinagar.

- NSM is a joint initiative of the Ministry of Electronics and Information Technology (MeitY) and Department of Science and Technology (DST).

- **About PARAM ANANTA**

- This high power supercomputer can process 838 lakh crore calculations per second.
- It is capable of offering peak performance of 838 teraflops.
- The facility has been set up under Phase 2 of the National Supercomputing Mission (NSM).
- A Memorandum of Understanding (MoU) was signed between IIT Gandhinagar and Center for Development in Advanced Computing (C-DAC) on 12 October 2020 to set up this 838 teraflops supercomputing facility under NSM.

- It is equipped with a mix of CPU nodes, GPU nodes, High Memory nodes, High throughput storage and high performance Infiniband.
- It is based on direct contact liquid cooling technology to achieve high power utilization effectiveness and reduce operating costs.
- This facility will be of great benefit to IIT Gandhinagar to pursue Research and Development (R&D) activities in the multidisciplinary domain of Science and Technology.

- **What are supercomputers?**

- A supercomputer can perform high-level processing at a faster rate than a normal computer.
- They work together to perform complex operations that are not possible with normal computing systems.
- Fast speed and fast memory are the characteristics of supercomputers.
- The performance of a supercomputer is generally evaluated in petaflops.

- **National Supercomputing Mission**

- The National Supercomputing Mission was launched In 2015.
- The aim of the mission was to enhance the research capacities in the country to form a Supercomputing grid.
- It supports the government's vision of 'Digital India' and 'Make in India' initiatives.
- The mission is being jointly operated by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY).
- It is implemented by Center for Development of Advanced Computing (C-DAC), Pune and IISc, Bengaluru.

- **Some important facts about supercomputer**

- China has the maximum number of supercomputers followed by the US, Japan, France, Germany, Netherlands, Ireland and the United Kingdom..
- India's first supercomputer - PARAM 8000
- first supercomputer assembled indigenously - PARAM Shivay, installed in IIT (BHU)
- PARAM Shakti, PARAM Brahma, PARAM Yukti, PARAM Sanganak are some name of india's supercomputers
- India's PARAM-Siddhi AI, has been ranked 63rd in the Top 500 list of most powerful supercomputers in the world.

### **3. One person dies of West Nile fever in Thrissur ( May 30, 2022 )**

The health department has been alerted after one person died of West Nile fever, a mosquito-borne disease, in Thrissur's Panancheri panchayat on May 29.

- **About West Nile Virus**

- West Nile virus is a mosquito-borne, single-stranded RNA virus.
- As per WHO, it is a member of the flavivirus genus and belongs to the Japanese Encephalitis antigenic complex of the family Flaviviridae.

- **Transmission of virus**

- The Culex species of mosquitoes serves as the major carrier for transmission.
- It is transmitted through infected mosquitoes to humans, animals and birds.
- Mosquitoes become infected when they feed on infected birds and circulate the virus in their blood for a few days.
- The virus eventually moves into the mosquito's salivary glands.
- When mosquitoes bite, the virus enters the body of humans and animals where there is a rapid increase in the number of viruses that cause disease.
- The virus can also be spread by blood transfusion, from an infected mother to her child, or through exposure to the virus in laboratories.

- **Symptoms**

- In 80% of the infected people the disease is asymptomatic.
- Symptoms seen in 20% of cases include fever, headache, fatigue, body aches, nausea, rash and swollen glands.
- Severe infection can lead to encephalitis, meningitis, paralysis, and even death.
- It usually becomes fatal in individuals with co-morbidities and in immune-compromised individuals (e.g. transplant patients).

#### **4. MoU signed between Ministry of Ayush and Department of Biotechnology ( May 26, 2022 )**

A Memorandum of Understanding (MoU) was signed between the Ministry of AYUSH and the Department of Biotechnology, Government of India to explore the possibility of collaboration, convergence and synergy to bring together expertise towards evidence based biotechnology interventions in the AYUSH sector.

- The MoU is expected to enable traditional health care and biotechnology to come together to conduct innovative and path-breaking research.
- Innovation and research can be used for the exploration of various fundamental principles of Ayush systems.
- The discovery and application of the ancient scientific method in the public health care sector requires multi-dimensional and technological methods.

- This is expected to pave the way for coordinated research in the AYUSH sector and harness the vast untapped potential of the AYUSH health care system for community benefit.
- The MoU will facilitate inter-ministerial cooperation for evidence based biotechnology interventions in the AYUSH sector.

## **5. BHASHINI to remove language barriers in using internet ( May 26, 2022 )**

A brainstorming session with researchers and start-ups was organised by the Ministry of Electronics and IT with an aim to shape the strategy for Digital India BHASHINI (Language Interface for India).

### **• About Digital India BHASHINI**

- It is India's Artificial Intelligence (AI) led language translation platform.
- It will make available Artificial Intelligence (AI) and Natural Language Processing (NLP) resources to startups and innovators in the public sector.
- It is a part of the National Language Translation Mission.
- Its objective is to substantially increase the content in Indian languages on the Internet in the areas of governance and policy, science and technology etc.

### **• Significance of the initiative**

- It will empower Indian citizens by connecting them to the country's digital initiatives in their own language.
- It will lead to digital inclusion.
- It will encourage participation of startups.
- It will create an ecosystem involving Central/State government agencies and start-ups, working together to develop innovative products and services in Indian languages.
- It will play an important role in realising the goal of digital government.
- It will Increase the Content in Indian Languages.

## **6. PARAM PORUL Supercomputer inaugurated at NIT, Tiruchirappalli ( May 25, 2022 )**

PARAM PORUL, a state-of-the art Supercomputer was inaugurated on May 25, 2022 at NIT Tiruchirappalli.

- It has been dedicated to the nation under the National Supercomputing Mission (NSM).
- National Supercomputing Mission (NSM) is a joint initiative of the Ministry of Electronics and Information Technology (MeitY) and the Department of Science and Technology (DST).

- A Memorandum of Understanding (MoU) was signed between NIT Tiruchirappalli and
- Center for Development in Advanced Computing (C-DAC) on 12 October 2020 to set up this 838 Teraflops supercomputing facility under NSM.
  - The system is equipped with a mix of CPU nodes, GPU nodes, high memory nodes, high storage and high performance Infiniband interconnects to meet the computing needs of various scientific and engineering applications.
  - It is based on direct contact liquid cooling technology to achieve high power utilisation effectiveness and thereby reduce operating costs.
  - This state-of-the-art computing system will prove to be of great importance to the research community.
  - Under NSM, so far 15 supercomputers with compute capacity of 24 petaflops have been installed across the country.
  - All these supercomputers are manufactured in India and are working with indigenously developed software stack.

## **7. Collaboration with The Ministry of Railways and Indian Institute of Technology (IIT) Madras ( May 24, 2022 )**

The Ministry of Railways will collaborate with the Indian Institute of Technology (IIT) Madras in the development of an 'indigenous' Hyperloop system and will also help in setting up a Centre of Excellence for Hyperloop Technology at the Institute.

- The plan to develop Hyperloop technology was launched by the then Railway Minister Suresh Prabhu in the year 2017.
- Indian Railways has taken this important step in the direction of making rail travel fast, easy and modern in the country.
- This project will also help in the goal of reducing carbon emissions and energy consumption.
- According to the Ministry of Railways, a team of students of the Indian Institute of Technology (IIT) 'Team Avishkar Hyperloop' is working on this transport medium.
- The model proposed by Team Invention can achieve a top speed of over 1,200 kmph and is completely autonomous, safe and clean.
- **What is Hyperloop?**
  - Hyperloop is a technology that uses a magnetic field in a low-pressure tube to move people and goods at high speed without friction.
  - Specially designed capsules or pods will be used in this.
  - The capsules and pods will be driven at high velocity inside a transparent tube pipe.

- In this, the pods will be driven above the ground in very large pipes on an electrical magnet, due to the effect of this magnet, the pods will rise slightly above the track, due to which the speed will increase and friction will be reduced.
- It will have a magnetic track on which the vacuum will be created. With this, the train will be able to move from one place to another very fast.

## **8. Development of battery-powered dual-mode locomotive 'Navdoot ( May 19, 2022 )**

West Central Railway has developed a battery operated dual-mode locomotive named Navdoot.

- This engine runs on both the modes i.e. battery and electricity.
- Presently it is being used during shunting of trains at Jabalpur, Murwara and other stations on trial basis.
- This dual mode locomotive has also received the Best Innovation Award from the Railway Board.
- With this new locomotive, Railways will save 1000 litres of diesel per day and it will be used more after clearing all the trials.
- **About the Nav Doot**
  - This e-engine can haul 18 coaches at a speed of 30 kmph.
  - It has 84 batteries and currently has a towing capacity of 400 tonnes.
  - It has been developed by the Electricity Department of New Katni Junction.
  - After clearing all the tests, it will be used more widely for purposes like carrying goods, coal, oil tankers etc. to other stations.

## **9. Country's first '5G testbed' launched ( May 18, 2022 )**

Prime Minister Narendra Modi inaugurated the country's first 5G testbed, which will enable industry players and startups to test and validate their products locally.

- This testbed has been set up at a cost of Rs 220 crore.
- This 5G testbed has been developed as a multi-institution collaborative project by 8 institutes led by IIT Madras.
- Due to no 5G testbed till now, startups and industry players had to go abroad to test and validate their products.
- This testbed will create a supportive ecosystem for the Indian industry and startups to help them validate their products, prototypes, solutions and algorithms in 5G and next-gen technologies.

- Other institutes involved in the project are IIT Delhi, IIT Hyderabad, IIT Bombay, IIT Kanpur, IISc Bangalore, Society for Applied Microwave Electronics Engineering and Research (SAMEER) and Centre of Excellence in Wireless Technology (CEWiT).

### **10. ISRO successfully test-fires 'Human-rated' solid rocket carrier (HS200) for Gaganyaan program ( May 14, 2022 )**

The Indian Space Research Organisation (ISRO) successfully completed the static test of the 'Human-rated' solid rocket carrier (HS200) for the Gaganyaan program at the Satish Dhawan Space Centre (SDSC) in Sriharikota, Andhra Pradesh.

- The HS200 satellite launch vehicle is a 'human-rated' version of the GSLV Mk III S200 rocket carrier, popularly known as LVM-3.
- The 'human-rated' version is the process of certification of a spacecraft or launch vehicle to show that the vehicle is capable of carrying humans safely into space.
- The design and development of the HS200 carrier was completed at VSSC, Thiruvananthapuram and the propellant casting was completed at SDSC, Sriharikota.
- The S200 motor is the first stage of the LVM-3 launch vehicle, intended to launch a 4,000 kg class satellite into geosynchronous transfer orbit.
- After the success of this test, ISRO has moved one more step towards the Gaganyaan program.

#### **• Gaganyaan mission of India**

- Gaganyaan is a mission of the Indian Space Research Organisation (ISRO).
- Under this mission, three space missions will be sent into orbit, out of these three missions, 2 will be unmanned, while one will be a manned mission.
- In the first phase, Gaganyaan's unmanned mission will be G-1. After this a robot named Vyommitra will be sent at the end of 2022.
- Gaganyaan mission with crew will be launched for the first time in 2023.
- The human space flight programme, called the Orbital Module, will have three Indian astronauts, including a woman.
- The three-stage GSLV Mk III will be used for the launch of Gaganyaan, which is capable of launching heavy satellites. GSLV Mk III is also called Launch Vehicle Mark-3.
- With the launch of Gaganyaan mission, India will join the club of US, China and Russia.