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1. India's AI supercomputer 'AIRAWAT' ranked 75th in Global Supercomputing list (May 25, 2023)

AIRAWAT

The **AI Supercomputer 'AIRAWAT'**, installed at **C-DAC, Pune** has been **ranked 75th in the top 500 Global Supercomputing List.**

An overview of the news

- The announcement was made during the **61st edition** of the **International Supercomputing Conference (ISC 2023)** held in **Germany.**
- The establishment of '**AIRAWAT**' at **C-DAC Pune** is part of the **National Program on AI** initiated by the Government of India.

About supercomputer AIRAWAT

- AIRAWAT is the name for an in-house **cloud platform for big data.**
- The proposed AIRAWAT system is a **100+ petaflop AI-focused supercomputer.**
- There are parallels drawn to Japan's AI Bridging Cloud Interface supercomputer in the NITI Aayog report.
- This system is a **130 petaflop** computer focused on providing compute for AI, ML and big data tasks.

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.

2. New species of flying lizard found in Mizoram (May 24, 2023)

New-species-of-flying-lizard-found-in-Mizoram

Mizoram's flying lizard species has been officially named as **Gecko mizoramensis**.

An Overview of the News

- The research for this discovery was done through a collaborative effort between **Mizoram University and the Max Planck Institute for Biology in Tübingen, Germany.**
- The study detailing the findings of the research on the gliding gecko species was published in a renowned **German journal on herpetology.**
- Specimens of Gecko mizoramensis were collected from different places of Mizoram.
- Collection sites include the Wildlife Sanctuary in **Kolasib District, Dampa Tiger Reserve, and Lawngtlai District.**

Mizoram:

- It is a state located in **Northeast India.**
- The name "**Mizoram**" is a combination of two words: "**Mizo**" and "**Ram**."
- "Mizo" refers to the self-described name of the original inhabitants of Mizoram.
- Establishment - **20 February 1987**

Capital - **Aizawl**

Chief Minister - **Zoramthanga**

Official flower - **Renanthera imschootiana**

Official Animal - **Sumatran Serow**

Official Tree - **Ceylon Ironwood**

3. Union Government approves signing of Project Cooperation Agreement between DHR and WHO on Assistive Technology (May 18, 2023)

Union-Government-approves

The Union Government approved the signing of a **Project Collaboration Agreement between the Department of Health Research (DHR) and the World Health Organization (WHO) on Assistive Technology.**

An Overview of the News

- **The agreement aims** to draw global attention to access to assistive technology, promote research and innovation, and develop training programs.
- The signing of a Memorandum of Understanding (MoU) between the **Competition Commission of India (CCI) and the Egyptian Competition Authority (ECA)** was approved during the meeting.
- The MoU focuses on **promoting and strengthening cooperation in competition law and policy** through information exchange, sharing of best practices and capacity building initiatives.
- **The objective of the MoU** is to develop and strengthen the relationship between the CCI and the ECA and to facilitate learning and cooperation in the enforcement of competition law.
- The Union Cabinet approved the signing of an **MoU between the Institute of Chartered Accountants of India (ICAI) and the Chartered Accountants of Maldives.**
- The objective of the MoU is to establish mutual cooperation for the advancement of accounting knowledge, professional and intellectual development, and development of the accounting profession in Maldives and India.

World Health Organization (WHO):

- It is a **specialised agency** of the **United Nations that focuses on global public health.**
- The headquarters of WHO is in **Geneva, Switzerland.**
- It operates through six regional offices and **150 field offices around the world.**
- It was established on **April 7, 1948** with the aim of addressing international health issues.

Department of Health Research (DHR):

- It was created in **September 2007** under the **Ministry of Health and Family Welfare.**

- Its creation was notified through an amendment to the **Government of India (Allocation of Business) Rules, 1961.**
- It was formally **launched on 5 October 2007.**
- DHR functions as a separate department within the **Ministry of Health and Family Welfare.**
- Its primary objective is to take modern health technologies to the masses through research and innovation.

4. Phase-3 trial for Panacea Biotech's Dengue Vaccine (May 18, 2023)

dengue vaccine

The **phase-3 trial** of a **dengue vaccine developed by Panacea Biotech** in collaboration with the **Indian Council of Medical Research (ICMR)** is likely to begin in August or September 2023.

An overview of the news

- Phase-III clinical trial is being done for evaluation of efficacy, along with **safety and immunogenicity of tetravalent dengue vaccine.**
- Serum Institute of India and Panacea Biotech have applied for **expression of interest** for clinical trials for indigenous manufacturers of dengue vaccine.

What is Dengue?

- Commonly known as **break bone fever**, it is a flu-like illness caused by the dengue virus.
- It occurs when an **Aedes mosquito** carrying the virus bites a healthy person.
- The disease is mainly found in **tropical and sub-tropical regions** of the world.

Causes of Dengue

- It is caused due to four viruses, namely - **DENV-1, DENV-2, DENV-3, and DENV-4.**
- The virus enters the mosquito when it bites an already infected person.
- The disease is transmitted when it bites a healthy person, and the virus is spread through the person's bloodstream.

Symptoms of Dengue

- Headache, Muscle, bone and joint pain, Nausea, Vomiting, swollen glands, Rash.
- **Treatment**
- There is no specific treatment for dengue.

- Early detection of severe dengue-associated illness and access to appropriate medical care reduce deaths from severe dengue.
- Diagnosis of dengue infection is done with a blood test.

Mosquito-borne diseases

- **Malaria** - This disease is caused by the bite of a **female Anopheles mosquito**.
- Malaria fever is caused by a virus called **Plasmodium vivax**.
- **Dengue** - Dengue virus is transmitted to humans through the bite of an infected **Aedes mosquito**.
- According to the World Health Organisation (WHO), dengue is the most widely spread disease by mosquitoes worldwide.
- **Chikungunya** - Chikungunya, like dengue, is caused by the bite of the Aedes mosquito.
- **Yellow Fever** - This disease is caused by the bite of a human from the Aedes mosquito, especially Aedes aegypti.
- Yellow fever is caused by **flavivirus**.

5. ICMR successfully tests blood bag delivery under iDrone initiative (May 13, 2023)

ICMR-successfully-tests-blood-bag-delivery-under-iDrone-initiative

The **Indian Council of Medical Research (ICMR)** has recently successfully tested the delivery of **blood bags by drone under its iDrone initiative**.

An overview of the news

- The trial run was conducted on **May 10, 2023**, a drone carrying a blood bag weighing 500 grams flew for a distance of 12 kilometres and delivered it safely at the designated location.
- The drone then **returned to the base station with another blood bag**.
- Its objective is to address the **challenges of blood transfusion services in rural and tribal areas**, where access to blood banks and transportation facilities is limited.

About iDrone initiative

- It was launched by the **Indian Council of Medical Research (ICMR)**.
- It aims to assess the **feasibility of using drones to deliver vaccines and medical supplies**.
- The i-Drone was **first used by the ICMR during the COVID-19 pandemic for the delivery of vaccines to inaccessible areas**.

- It is now being used to deliver blood and blood-related products that need to be kept at low temperatures.

6. Indian Council of Medical Research and Ministry of AYUSH signed MoU (May 11, 2023)

Indian Council of Medical Research and AYUSH Ministry on 11 May signed an **MOU for collaborative and cooperative momentum on health research** in the field of **Integrated Medicine**.

An overview of the news

- The MoU was signed by **Rajesh Kotecha**, Secretary, Ministry of AYUSH and **Dr. Rajiv Bahl**, Secretary DHR & DG, ICMR in the presence of **Dr. Mansukh Mandaviya** Union Minister of Health & Family Welfare.
- The MoU envisages collaboration in areas of **convergence and synergy between the two organizations** to strengthen integrated health research and research capacity.
- The MoU also envisages exploring the possibility with the **Ministry of AYUSH and ICMR** to work on **public health research initiatives** to address diseases of national importance.
- A Joint Working Group will be formed between the Ministry of AYUSH and ICMR which will meet quarterly to explore other areas of collaboration and work on deliverables.
- Both the institutes will formulate and implement joint research projects and programmes.

Indian Council of Medical Research (ICMR)

- It is one of the oldest medical research bodies in the world headquartered in New Delhi for the coordination and promotion of biomedical research.
- It works under the **Department of Health Services (DHS), Ministry of Health and Family Welfare**.
- It was **established in 1911** as **Indian Research Fund Association (IRFA)**.
- Later in 1949 its name was **changed to ICMR**.

7. IIT Madras researchers partner for development of materials and micro-device processing techniques (May 11, 2023)

IIT Madras researchers have partnered with **Defence Research and Development Organisation (DRDO) scientists** to develop **sensor technology for underwater communications**, which will be advantageous to **defence applications, especially in the Navy**.

An overview of the news

- '**Piezoelectric MEMS technology**' is needed to develop high-performance thin films and to convert '**piezo-thin films**' into future naval sensors and devices for underwater applications.
- Piezo thin film is an important component of piezo MEMS devices and is considered for acoustics and vibration-sensing applications.
- The installation of **state-of-the-art Piezo MEMS technology** enables India to advance defense efficiency and allows the nation to execute strategic operations of critical applications.
- The large area piezo thin film and MEMS process technology will support the **ongoing/future technologies for DRDO's next generation sonar program for the Indian Navy.**

Defence Research and Development Organisation (DRDO)

- It is a premier defence research and development agency under the **Ministry of Defence, Government of India.**
- It is working on several cutting-edge military technology areas, including **aeronautics, armaments, combat vehicles, electronics, instrumentation, engineering systems, missiles, materials, naval systems, advanced computing, simulation, cyber, hypersonic technology, quantum computing and communications**
- DRDO's first project for the Indian military was in **surface-to-air missiles (SAM) known as Project Indigo.**
- Since inception, DRDO has made several breakthroughs in developing key systems and critical technologies such as **aircraft avionics, UAVs, small arms, artillery systems, EW systems, tanks and armoured vehicles, sonar systems, command and control systems and missile systems**
- It aims to make India self-reliant in **critical defence technology and systems.**
- It was set up in 1958.
- Headquarters - **New Delhi**
- Chairman - **Samir V Kamat**

8. PM Modi lay foundation stone of scientific projects worth over Rs 5,800 cr (May 11, 2023)

Prime Minister Narendra Modi laid the foundation stone and dedicated to the nation **several scientific projects worth over Rs 5,800 crore** on the occasion of **National Technology Day in New Delhi on May 11.**

An overview of the news

- The Prime Minister inaugurated an event to mark the day.

- This year, the **Atal Innovation Mission (AIM)** has received **special attention in the celebration of National Technology Day.**
- The AIM Pavilion will showcase a range of innovative projects and provide an opportunity to the visitors to witness live tinkering sessions, engage in tinkering activities and witness outstanding innovations and products by startups.
 - During the event, the **Prime Minister also inaugurated an expo** showcasing the scientific and technological advancements made in India in the recent past.
 - Prime Minister Modi also released a **commemorative stamp and coin on the occasion.**

The projects whose foundation stone was laid by the PM

- Laser Interferometer Gravitational-Wave Observatory - India (LIGO-India), Hingoli.
- Homi Bhabha Cancer Hospital and Research Centre, Jatni in Odisha.
- Platinum Jubilee Block of Tata Memorial Hospital, Mumbai.

About LIGO-India Project

- It will be an advanced gravitational-wave observatory located in **Maharashtra**, India, as part of a worldwide network.
- It is envisaged as a collaborative project between a **consortium of Indian research institutions and the LIGO Laboratory in the United States of America** as well as its international partners.
- It will be built by the **Department of Atomic Energy and the Department of Science and Technology** with a **Memorandum of Understanding (MoU)** with the National Science Foundation, US, along with several national and international research and educational institutions.
- It was given "**in-principle**" **approval by the Union Cabinet in February 2016** with the objective of providing wider opportunities to Indian youth to pursue research careers in cutting-edge areas of science and technology.

9. Science 20 Engagement Group meeting under India's G20 chairmanship begins in Lakshadweep (May 1, 2023)

Science 20 Engagement Group meeting under India's G20 chairmanship begins in Lakshadweep

On 1 May, the **Science 20 Engagement Group meeting on Universal Holistic Health** began under **India's G20 chairmanship in Lakshadweep, Bangaram Island.**

An Overview of the News

- The focus of the two-day event is to work towards **better agricultural practices, greater access to nutritious food, healthier eating habits and more opportunities for ecologically conscious and sustainable food products.**
- The meeting will address the **interconnectedness of physical, mental and emotional well-being, recognizing that all aspects of health are equally important.**
- The aim of the event is to develop a **holistic approach to health that focuses on promoting wellness and preventing diseases** rather than merely treating them.
- It is an effort to bring together **scientists, experts and policy makers from different countries** to exchange ideas and knowledge on health related issues.
- The Engagement Group will also explore the role of **technology in promoting health and wellness**, such as the **use of telemedicine and digital health solutions.**
- The event is a significant step towards achieving India's vision of universal health coverage and promoting the **Sustainable Development Goals.**

About Lakshadweep

Formation- **1 November 1956**

Capital- **Kavaratti**

Administrator- **Praful Khoda Patel**

Largest city- **Andrott**

High Court- **Kerala High Court**

Bird- **Brown Noddy**

10. India will be a partner in increasing facilities in Britain's premier Rutherford Appleton Laboratory (April 29, 2023)

Dr. Jitendra Singh, Union Minister for Science and Technology visited the **Rutherford Appleton Laboratory (RAL)**, a premier institution in the United Kingdom on 28 April 2023.

An Overview of the News

- Dr Jitendra Singh is leading a high level official Indian delegation from the Ministry of Science and Technology on a 6-day visit to the United Kingdom.
- During this Dr Singh met researchers including those working on the UK-India ISIS project.
- The Rutherford Appleton Laboratory (RAL) is one of the national scientific research laboratories operated by the Science and Technology Facilities Council (STFC) in the UK.
- In addition to the indigenous (hosting) facilities for the United Kingdom (UK), RAL also operates departments to co-ordinate the UK program of participation at major international facilities.

- The biggest of these are particle physics and space science.
- Minister said under mega facilities for basic research, Indian researchers are collaborating with international institutes like CERN (CERN - Geneva), FAIR (FAIR - Germany), TMT (USA), Fermilab (USA) and LIGO (USA) .
- The ISIS Accelerator at RAL is one of the few major research centers undertaking neutron scattering studies in materials research.
- Its Phase II (2023-28) proposal is under consideration which has 5 components,

Advanced Gravitational-wave Detector in Maharashtra:

- In another breakthrough in the field of science and innovation, the LIGO-India project has been approved in Maharashtra to build an advanced gravitational-wave detector.
- The construction of the facility is expected to be completed by 2030 at an estimated cost of Rs 2,600 crore.
- The observatory will be the third of its kind, built to the exact specifications of the Twin Laser Interferometer Gravitational-Wave Observatories (LIGO) to operate in conjunction with those in Louisiana and Washington.