

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

### **1. Country's first Artificial Intelligence & Robotics Technology Park launched in Bengaluru ( March 15, 2022 )**

The country's first Artificial Intelligence & Robotics Technology Park (ARTPARK) was launched in **Bengaluru** on 14 March 2022. It is promoted by a not-for-profit foundation set up by the Indian Institute of Science (IISc) Bengaluru.

- The Park has been set up with a capital of Rs 230 crore out of which the central government contribution is Rs 170 crore and the Karnataka government contribution is Rs 60 crore.
- The ARTPARK will work on creating a globally leading Artificial Intelligence (AI) and Robotics Innovation ecosystem in the country.

### **Indian Institute of Science (IISc)**

- The Indian Institute of Science was set up in 1909 at **Bengaluru, Karnataka** by a partnership between the industrialist JRD Tata, the Mysore royal family and the Government of India.
- IISc is India's premier institute for advanced scientific and technological research and education.
- In 2018, IISc was selected as an Institution of Eminence (IoE) by the Government of India.

### **2. Petascale Supercomputer "PARAM Ganga" established at IIT Roorkee ( March 9, 2022 )**

The **National Supercomputing Mission** has installed the Petascale Supercomputer "**PARAM Ganga**" at **IIT Roorkee** with a supercomputing capacity of 1.66 Petaflops.

- The National Supercomputing Mission (NSM) is a joint project of **Ministry of Electronics & Information Technology (MeiTY) and the Department of Science and Technology (DST)** and it is being implemented by Centre for Development of Advanced Computing (C-DAC) and Indian Institute of Science (IISc), Bangalore.
- The National Supercomputing Mission was launched to enhance the research capacities and capabilities in the country by connecting them to form a Supercomputing grid, with National Knowledge Network (NKN) as the backbone.
- The Mission plans to build and deploy 24 facilities with cumulative compute power of more than 64 Petaflops. Till now C-DAC has deployed 11 systems at IISc, IITs, Indian Institute of Science and Education Research(IISER) Pune, Jawaharlal Nehru Centre for Advanced Scientific Research( JNCASR) Bengaluru, National Agri-Food Biotechnology Institute (NABI), Mohali and C-DAC.

### **Important Information**

- The fastest supercomputer in the world is the **Fugaku supercomputer** located at RIKEN Centre for Computational Science in Kobe, Japan. It has a computing speed of 415.5 petaflops.
- The fastest supercomputer in India is **Param Pravega** at the Indian Institute of Science (IISc), Bengaluru. It has a supercomputing capacity of 3.3 petaflops.

### **Petaflops**

- It refers to the computer which has a capability to calculate at least  $10^{15}$  floating point operations per second.

### **3. Microsoft unveils fourth data center in India ( March 8, 2022 )**

American multinational company Microsoft will set up its fourth data centre in Hyderabad, Telangana. It is being set up with an investment of Rs 15,000 crore over 15 years.

- The data centre will become operational by 2025.
- Microsoft set up its first data centre in India in 2015 and at present its data centre is operational in **Mumbai, Pune and Chennai**.
- It will offer the entire Microsoft portfolio across the cloud, data solutions, artificial intelligence (AI), productivity tools, and customer relationship management (CRM) with advanced data security, for enterprises, start-ups, developers, education, and government institutions.
- This will help customers in India thrive in a cloud and AI-enabled digital economy.

### **4. 93% of Indian lives in high air pollution areas ( March 7, 2022 )**

The United States based Health Effect Institute (HEI) in its Annual report "State of Global Air analysis for the year 2020" has found that around 93% of the Indian population lives in areas where the air pollution is seven times the World Health Organisation (WHO) standards.

#### **Major highlights of the report**

- 93% of the Indian population is exposed to air containing at least  $35\mu\text{g}/\text{m}^3$  concentration of PM<sub>2.5</sub> (particulate matter of the size of 2.5 microns). According to the WHO standards, the upper annual limit for PM<sub>2.5</sub> is  $5\mu\text{g}/\text{m}^3$ .
- Due to high exposure to air pollution, Indians have on an average lost 1.51 years of their life.
- The large exposure to PM<sub>2.5</sub> has also reduced life expectancy for countries and regions—Egypt (2.11 years), Saudi Arabia (1.91 years), India (1.51 years), China (1.32 years) and Pakistan (1.31 years).
- Almost 100% of the world population lives in areas where the PM<sub>2.5</sub> levels exceeded WHO recommendations.

- India was ranked as the ninth most exposed country to Ozone after Congo, Ethiopia, Germany, Bangladesh, Nigeria, Pakistan, Iran and Turkey.
- The lowest impacts of pollution on longevity is in Norway, Sweden, Australia, and New Zealand.

## **Concept Clearing**

### **PM or Particulate Matter 2.5 and PM 10**

- Particulate matter is composed of a mixture of solids and liquids found in the air. It comprises dust, dirt, soot, etc.
- PM or particulate matter, in simple words, refers to small particles of dust
- Dust particles are graded by measuring their diameter in microns. The most important types of particulate matter are PM2.5 and PM 10 from a public health perspective.
- PM 2.5 has a diameter of 2.5 microns and PM 10 has a diameter 10 microns.
- It enters into lungs and causes respiratory diseases like asthma, bronchitis etc.

## **5. IPCC warns of irreversible impact of global climate change ( March 1, 2022 )**

The Intergovernmental Panel on Climate Change (IPCC) has warned of a grim future for earth if global warming continues and the global temperatures continue to increase beyond 1.5% .

- The latest warnings have come in the second part of IPCC's Sixth Assessment Report which talks about climate change impacts, risks and vulnerabilities, and adaptation options. The first part of the report was released in August last year.
- The Assessment Reports, the first of which had come out in 1990, are the most comprehensive evaluations of the state of the earth's climate. Later reports were released in 1995, 2001, 2007 and 2015.

The report highlights the increasing impacts that are expected as the rise in global temperatures, currently around 1.1C, heads to 1.5C above the 1850s level.

### **Highlights of the report**

- South Asia is the most vulnerable to severe climate change impacts due to its inequality and poverty .
- The Ganga, Indus, Amu Darya river basins in Asia will face severe water scarcity by 2050. It will adversely affect agriculture and drinking water scarcity in the region .
- Ahmedabad city faces a risk of urban heat island effect . It means that the average temperature in the city will be higher than the surrounding areas.
- Mumbai is at a high risk of rising sea level and consequent flooding
- If the temperature increases by 1-4 degree centigrade then rice production in the world can fall by 10-30% and maize production can fall by 25-70%.
- If temperatures rise to between 1.7 and 1.8C above the 1850s level, then the report states that half the human population could be exposed to periods of life-threatening climatic conditions arising from heat and humidity.

## **Rising Sea Level**

According to the IPCC report, global sea levels will likely rise 44-76 cm this century if governments meet their current emission-cutting pledges. With faster emission cuts, the increase could be limited to 28-55 cm.

But with higher emissions, and if ice sheets collapse more quickly than expected, sea levels could rise as much as 2 m this century and 5 m by 2150.

## **Wet Bulb Temperature**

- Lucknow and Patna ,Bhubaneswar, Chennai, Mumbai, Indore, and Ahmedabad , are among the cities predicted to reach wet-bulb temperature of 35°C if emissions continue to rise.
- Assam, Meghalaya, Tripura, West Bengal, Bihar, Jharkhand, Odisha, Chhattisgarh, Uttar Pradesh, Haryana and Punjab will be the most severely affected, but if emissions keep rising, all States will have regions that experience wet-bulb temperature of 30°C or more by the end of the century.

## **IPCC**

The Intergovernmental Panel on Climate Change was set up by the World Meteorological Organisation and the United Nation Environment Programme in 1988.

### **Aim of IPCC**

It was set up to prepare a comprehensive review and recommendations with respect to

- the state of knowledge of the science of climate change;
- social and economic impact of climate change,
- potential response strategies and elements for inclusion in a possible future international convention on climate.

Its Headquarters : **Geneva, Switzerland**

Current Chairman : **Hoesung Lee**

**It shared Nobel Peace Prize with the former American Vice-President Al Gore in 2007**

## **Concept Clearing**

### **What is Wet Bulb Temperature**

Human body regulates our body temperature depending upon the external environment of heat and humidity. If the temperature is high then our body tries to lower down our body temperature by sweating. The more we sweat the faster the cooling. However if humidity (water vapour in air ) is high then the ability of our body to cool also reduces . That's why dry heat feels more tolerable than extreme humidity.

Wet-bulb temperature accounts for both heat and humidity, and reflects what that combination means for the human body's ability to cool down.

The term wet bulb comes from a way the measurement can be taken, by wrapping a piece of wet cloth around the end of a thermometer to see how much evaporation can decrease the temperature.

35 degree centigrade is considered to be the maximum limit for a wet bulb temperature.

If the wet bulb temperature reaches 35 degree centigrade then a normal healthy human being cannot lose its body heat by sweating and will suffer heat stroke leading to death if they remain outdoors for a considerable period of time.

With the continuous rise in earth temperature the risk of wet bulb temperature phenomena is expected to become common.

## **6. MSME Technology conclave Center to be set up in Sindhudurg ( Feb. 26, 2022 )**

Union Minister for Micro, Small & Medium Enterprises (MSME), Shri Narayan Rane announced the establishment of MSME-Technology Centre with an outlay of Rs. 200 Crore, in Sindhudurg, Maharashtra on 25 February 2022.

- The MSME-Technology Centre will provide the best of technology, incubation as well as advisory support to the industry, especially MSMEs, to enhance their competitiveness and provide skilling services for the employed and unemployed youth of the area to enhance their employability.

The minister also launched the Union MSME RuPay Credit Card of Union Bank of India in Sindhudurg at the two day MSME Conclave being held in the district from 25-26 February 2022.

- The card is being offered by Union Bank of India in association with National Payments Corporation of India (NPCI).
- MSME borrowers will be able to enjoy an interest-free credit period of up to 50 days on their business spends. The card also offers the EMI (Equated Monthly Installments )facility to the customers on their business-related purchases.

The two-day MSME Conclave (25 and 26 February) was organized in Sindhudurg by the Ministry of MSME. The Conclave aims to promote entrepreneurship and trade opportunities for MSMEs in the Konkan region by hand holding them in use of technology, product development and skilling.

## **Concept Clearing**

### **MSME (Micro Small and Medium Enterprises)**

### **MSME (Micro Small and Medium Enterprises )**

The MSME has been defined by the 'Micro, Small and Medium Enterprises Development Act, 2006 as amended in 2020.

The enterprises which are either in the business of Manufacturing or providing service has been defined as Micro, Small , Medium enterprises on the basis of Investment in plant and machinery needed for production of good (for manufacturing sector ) or services and Turnover (sales)

**Micro Enterprises :** where the investment in Plant and Machinery or Equipment does not exceed one crore rupees and turnover does not exceed five crore rupees;

**Small Enterprise:** where the investment in Plant and Machinery or Equipment does not exceed ten crore rupees and turnover does not exceed fifty crore rupees;

Medium enterprise, where the investment in Plant and Machinery or Equipment does not exceed fifty crore rupees and turnover does not exceed two hundred and fifty crore rupees.

## **7. Svalbard Global Seed Vault to receive rare seeds deposits ( Feb. 14, 2022 )**

The Svalbard Global seed vault on **Spitsbergen island** halfway between mainland Norway and the North Pole is only opened a few times a year to limit its seed banks' exposure to the outside world.

On 14 February 2022, the gene banks from Sudan, Uganda, New Zealand, Germany and Lebanon will deposit seeds, including millet(bajra), sorghum(Jowar) and wheat, as back-ups to their own collections in the vault.

- The Seed Vault is owned and administered by the Ministry of Agriculture and Food on behalf of the Kingdom of Norway and is established as a service to the world community.
- The Svalbard Global Seed Vault provides insurance against both incremental and catastrophic loss of crop diversity held in traditional genebanks around the world. The Seed Vault offers long-term protection for one of the most important natural resources on earth.
- The vault is located an extraordinary 120 metres (393.7 feet) into the rock, ensuring that the vault rooms will remain naturally frozen even in the event of failure of the mechanical cooling system and rising external air temperatures due to climate change.
- The Seed Vault has the capacity to store 4.5 million seed samples.
- The vault at present holds over 1.1 million seed samples of nearly 6,000 plant species from 89 seed banks globally, and serves as a backup for plant breeders to develop new crop varieties.
- The world used to cultivate more than 6,000 different plants but U.N. experts say we now get about 40% of our calories from three main crops -- maize, wheat and rice -- making food supplies vulnerable if climate change causes harvests to fail.

## **Important for Exams**

### **Important Place**

### **Svalbard : Norway**

## **8. ISRO launches first satellite of the 2022 ( Feb. 14, 2022 )**

The Indian Space Research Organisation- (ISRO) successfully launched a **Polar Satellite Launch Vehicle -C52(PSLV-C52)** on 14 February 2022 from the Satish Dhawan Space Centre at Sriharikota in Andhra Pradesh.

The PSLV-C52 rocket carried three satellites EOS-04 ,INSPIREsat-1and INS-2TD)

### **Satellites carried by PSLV-C52**

#### **EOS-04 Satellite**

- It is a Radar Imaging Satellite designed to provide high quality images under all weather conditions for applications such as Agriculture, Forestry and Plantations, Soil Moisture and Hydrology and Flood mapping.
- It is a 1,710 kg satellite which was built at the UR Rao Satellite Centre in Bengaluru.
- It will be deployed into a sun synchronous polar orbit of 529 km.

#### **INSPIREsat-1**

It is a micro satellite made by students of Indian Institute of Space Science and Technology ,Thiruvananthapuram, Kerala in association with Laboratory of Atmospheric and Space Physics at University of Colorado, Boulder, Nanyang Technology University (NTU), Singapore and National Central University(NCU),, Taiwan.

#### **INS-2TD**

It is a technology demonstrator satellite which is a forerunner to the India-Bhutan satellite INS 2-B

### **Fact about ISRO PSLV Mission**

- Polar Satellite Launch Vehicle is a four stage rocket of ISRO which was launched on 30 September 1993 for the first time .
- This was the 80th launch vehicle mission from SDSC SHAR, Sriharikota;
- It was the 54th flight of PSLV;
- It was the 23rd flight of PSLV in the XL configuration (6 strap-on motors).

### **Indian Space Research Organisation (ISRO)**

- ISRO was set up on 15 August 1969
- Chairman of ISRO: S Somnath
- Headquarters of ISRO : Bengaluru, Karnataka
- Space Station from where ISRO launches rockets
- Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota, Andhra Pradesh.

### **Full form for Exam**

- **ISRO**: Indian Space Research Organisation
- **PSLV** : Polar Satellite Launch Vehicle
- **EOS** : Earth Observation Satellite
- **SDSC**: Satish Dhawan Space Centre
- **SHAR** :Sriharikota Range

## **9. Tower of Silence to be fenced ( Feb. 5, 2022 )**

The Supreme Court has approved the Parsi(Zoroastrian ) community agreement with the Government of India to fence their **Tower of Silence** in order to follow Covid protocol regarding the disposal of dead bodies. The dead bodies of the community will be now fenced with a metallic net in their tower of silence .

- In the Parsi Dokhamanshini tradition, the dead body is kept on the roof of a structure referred to as the tower of silence, to be eaten by vultures, and the remains are left to decompose under the sun.
- The Parsi community approached the court after the Government of India issued a guideline regarding disposal of dead bodies during covid pandemic. The bodies were to be fully covered and were to be either buried or burnt as coronavirus was found to be active on dead bodies for nine days .
- The Parsi community argued that it was against their custom of Dokhamanshini.

Now in a compromise the community and the government have agreed to fence the dead body with metallic mesh in the tower of silence , so that it is not eaten by vultures and the spread of coronavirus can be stopped .

**According to the 2011 census the total population of Parsis in India was 57,624.**

## **10. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) ( Feb. 5, 2022 )**

The Prime Minister inaugurated the 50th Anniversary celebrations of ICRISAT.

- He inaugurated ICRISAT's Climate Change Research Facility on Plant Protection and ICRISAT's Rapid Generation Advancement Facility.
- These two facilities are dedicated to the smallholder farmers of Asia and sub-Saharan Africa.
- The Prime Minister also unveiled a specially designed logo of ICRISAT and launched a commemorative stamp issued on the occasion.



**ABOUT ICRISAT**

ICRISAT is a non-profit international organisation founded by renowned agricultural scientists **M.S.Swaminathan, C.Fred Bently and Ralph Cummins in 1972 at Patancheru, Hyderabad.**

- It was set up to conduct agricultural research for development in the drylands of Asia and sub-Saharan Africa.
- Its mission is to empower these poor people to overcome poverty, hunger and a degraded environment through better agriculture.
- It helps farmers by providing improved crop varieties and hybrids and also helps smallholder farmers in the drylands fight climate change.
- It has two regional hubs at Nairobi( Kenya) and Bamako( Mali). It has country offices in Niger, Nigeria, Zimbabwe, Malawi, Ethiopia and Mozambique.