



EVERYDAY CURRENT AFFAIRS - October TAMIL NADU

- Union Finance Minister Nirmala Sitharaman - took part in the Rozgar Mela programme organized by the Southern Railway in Aynavaram, Chennai



- ✓ A total of 255 fresh recruits received appointment letters in Chennai for various posts in Central Government, ministries/departments.
- ✓ While most of the recruits were from Tamil Nadu, there were few from Andhra Pradesh and Uttar Pradesh too.
- ✓ Out of the 255 candidates, 76 of them were inducted into the Southern Railways, 52 into the Indian Coast Guard and 25 into the Employees State Insurance Corporation.
- ✓ The remaining candidates were recruited into ISRO, department of posts, Indian Bank, Canara Bank, CRPF, CISF amongst others.
- ✓ **On October 22, Prime Minister Narendra Modi launched Rozgar Mela for 10 lakh personnel via video conferencing.**
- ✓ Rozgar Mela is a flagship programme of the government to provide job opportunities for the youth.
- ✓ During the ceremony, appointment letters were handed over to 75,000 newly inducted appointees at 50 locations across the country.

- **The state health department - has launched special screening programmes for nine different ailments at the Rajiv Gandhi Government General Hospital, Chennai**
- ✓ The screening will be done at the hospital at a cost of nearly one-tenth of the cost at private laboratories and hospitals
- ✓ The screening is done as a part of the master health check-up
- ✓ It will include tests for renal and heart diseases, blood disorders, cancer, obesity, diabetes, infertility and Covid sequelae.
- ✓ The cost for these tests will vary from Rs. 600 to Rs. 2,500.
- ✓ The state now has about three standard tests under the master health programme.
 - ✓ The gold test is offered at 1,000, the diamond scheme is offered at 2,000 and the platinum at 3,000.
 - ✓ These tests cover procedures such as mammograms, DEXA scan (bone density test), thyroid profiles, ECHO and HbA1c (diabetes).
- ✓ The new scheme will offer gold-standard tests for various ailments.
- ✓ **Meanwhile, the state health department has launched a pilot study as part of which at least 500 doctors in government service will carry first-aid kits in their cars.**
- ✓ These kits will have at least 14 equipment and life saving drugs worth Rs.5000.
- ✓ Doctors can use these kits to offer first aid to accident victims or trauma cases outside hospitals before ambulances arrive
- ✓ After first aid, these patients will be taken by the 108 ambulances to the nearest health facility.
- ✓ Accident victims will get coverage of up to 2 lakh for various lifesaving procedures in the first 48 hours at all empanelled hospitals.
- ✓ The state has introduced many such schemes to bring down deaths and disabilities caused by road accidents and trauma

STATES

- **The Assam government and the US Agency for International Development (USAID) - launched the “Trees Outside Forests in India (TOFI)” programme in Assam recently on October 18**



- ✓ It is an afforestation programme to plant trees outside the traditional forest areas in the state.
 - ✓ The programme aims to bring together farmers, companies, and private institutions to rapidly expand tree coverage outside of traditional forests in the state.
 - ✓ The Trees Outside Forests in India programme is expected to enhance carbon sequestration, support local communities, and strengthen the climate resilience of agriculture, thereby supporting global climate change mitigation and adaptation goals
 - ✓ Through agroforestry, or integrating trees into farming systems, TOFI will improve the resilience of farming systems
 - ✓ The initiative will also increase the income of farmers in Assam, in partnership with Assam's Environment and Forest Department and Assam Agroforestry Development Board
 - ✓ The Trees Outside Forests in India programme was first launched by the Ministry of Environment, Forest, and Climate Change in association with USAID in September 2022
 - ✓ The programme is implemented by an eight-member consortium led by Center for International Forestry Research (CIFOR) and World Agroforestry Centre (ICRAF).
 - ✓ The five-year joint programme will allocate up to \$25 million in seven participating states - Assam, Andhra Pradesh, Haryana, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh
 - ✓ It seeks to rapidly expand tree coverage outside of traditional forests by 2.8 million hectares, contribute to India's Nationally Determined Contribution target of creating an additional "carbon sink" of 2.5 to 3 billion tons of carbon dioxide equivalent by the year 2030.
- **The people of Assam – have celebrated the auspicious harvest festival of Kati Bihu recently on October 18**



- ✓ It is marked annually on the first day of the Kati month in the Assamese calendar
- ✓ The festival, also known as Kongali Bihu, marks a crucial phase in every farmer's family in Assam with the fresh start of the harvest season.

- ✓ Kati Bihu is one of the three Bihu celebrated in Assam, with the other two being Bhogali or Magh Bihu (celebrated on January 13 or 14) and Rongali or Bohag Bihu (celebrated on April 14 or 15).

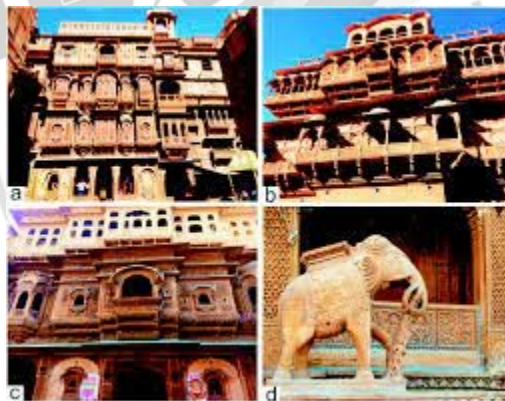
NATIONAL

- **The Centre - has approved the setting up of the Terai Elephant Reserve (TER) at Dudhwa-Pilibhit in Uttar Pradesh.**



- ✓ The new reserve, spread over 3,049 sq km, will be India's 33rd elephant reserve and 2nd in Uttar Pradesh
- ✓ The first elephant reserve in Uttar Pradesh was notified in Shivalik in Sahranpur and Bijnor districts in 2009
- ✓ An elephant reserve includes protected areas, forest areas and corridors for conservation of wild elephants.
- ✓ TER will be developed in the joint forest areas comprising Dudhwa and Pilibhit tiger reserves, Kishanpur and Katarniaghat wildlife sanctuaries.
- ✓ It will cover conservation of four wild species such as tiger, Asian elephant, swamp deer and one-horned rhinoceros in the entire landscape
- ✓ Announcing the Centre's approval of the TER, environment minister Bhupender Yadav said the move would help in conserving trans-boundary migratory elephant populations.
- ✓ The reserve, through implementing human-elephant conflict mitigation strategies, will protect villagers living in the Indo-Nepal border areas of UP.
- ✓ It will also be beneficial for the two tiger reserves in terms of managing grassland and corridor maintenance.
- ✓ TER is the third new elephant reserve that got approval in the past over three months under 'Project Elephant'.
- ✓ The other two are Lemru in Chhattisgarh and Agasthiyamalai in Tamil Nadu.
- ✓ Project Elephant is a centrally sponsored scheme which supports elephant conservation in India.
- ✓ Elephants have been recognised as a national heritage animal of India and the highest degree of protection has been given to it under Indian Wildlife Protection Act, 1972.

- ✓ India has largest population of Asian elephants with 30,000 wild and about 3,600 captive ones.
 - ✓ All 33 elephant reserves put together cover a total area of nearly 80,000 sq km.
 - ✓ Tamil Nadu and Assam have the highest number of elephant reserves with five each in both states.
- **In perhaps a first for the country, the Palghar district administration - has begun disaster-management training for transgender individuals.**
- ✓ The first of a series of workshops held recently saw 15 transgender people from the district getting familiar with basic first aid technique.
 - ✓ Under the programme, modules are being developed to train transgender individuals on how to respond to various calamities, including accidents of their community members.
 - ✓ The participants, mostly from in and around Palghar, went through slides on first-aid training, including handling and prevention of injuries in an accident.
 - ✓ There are around 150 transgenders registered in the district.
 - ✓ The district's efforts have been lauded by the National Institute of Disaster Management, under the home ministry.
- **Two heritage stones from Rajasthan - have been accorded the status of global heritage stones.**



- ✓ Alwar's quartzites and Jaisalmer's limestone are now in the list of ten stones worldwide designated as global heritage stones by International Union of Geological Sciences (IUGS).
- ✓ Deccan basalt, which is found in many parts of the country, also finds place in the IUGS list.
- ✓ Earlier, Makrana marble was the only stone from India recognized by IUGS.
- ✓ IUGS identifies and recognises natural stones that have played a significant role in the world's major stone-built architecture, with linkages to our cultural ethos, as Global Heritage Stone Resource (GHSR)
- ✓ Through the GHSR classification, the Heritage Stone Sub-commission aims at promoting geological knowledge, usage, and conservation of culturally, architecturally and historically significant natural stones around the world.

- ✓ Natural stones have been used in human cultures to create significant artistic and architectural monuments and buildings that reflect our cultural evolution.
 - ✓ These natural stones are internationally recognised and accredited based on nine criteria.
 - ✓ The worldwide identification is aimed at giving the stones an identity and value.
 - ✓ The GHSR accreditation is important in highlighting the stones as a valuable natural resource sourced from the earth and used in heritage buildings and monuments
 - ✓ It requires a thorough understanding of the stone's attributes, the geological history of its formation, source quarries, quarrying history, and conservation measures
 - ✓ As part of the process, researchers have undertaken studies and collection of information about the stones or quarries to ascertain their heritage quality.
- **A partial solar eclipse - will be visible across several countries of the Northern Hemisphere on October 25**



- ✓ The eclipse will be visible in the region covering Europe, the Middle East, north-eastern parts of Africa, western Asia, the North Atlantic Ocean and the North Indian Ocean
- ✓ It will be the 16th partial solar eclipse of the century, and the second of this year
- ✓ Globally, the partial eclipse will begin at 2. 29pm IST and end at 6. 32pm.
- ✓ In India, the eclipse will begin before sunset in the afternoon and will be seen from most of the places.
- ✓ In Chennai, the event will last only 30 minutes starting 5:14 PM and will be visible closer to the western horizon
- ✓ The previous partial solar eclipse that was visible in Tamil Nadu was on June 21, 2020 and the next event that can be observed from the state is on August 2, 2027.
- ✓ The next total solar eclipse will cross North America on April 8, 2024, according to NASA
- ✓ According to the Ministry of Earth Science, the eclipsed sun should not be viewed with the naked eye, even for a very short time.

- ✓ It will cause permanent damage of the eyes leading to blindness even when the Moon covers most portion of the Sun
 - ✓ Solar eclipses occur when the Moon passes between the Sun and Earth, casting its shadow down onto our planet.
 - ✓ A total solar eclipse happens when the Moon completely blocks the Sun's disk, momentarily plunging a portion of the Earth into complete darkness
 - ✓ In case of a partial solar eclipse, the Moon's shadow will not touch the surface of the Earth at any point
- **Vaccine major Serum Institute of India (SII) - has launched efforts to manufacture an experimental vaccine against the ebola virus, which will be ready for human trials in Uganda by November-end.**
- ✓ The African country is presently in the midst of an ebola outbreak and has recorded at least 19 deaths and some 60 infections in the last month.
 - ✓ There are two viral species that cause ebola in humans — the Zaire and Sudan strains.
 - ✓ Presently, the two licensed vaccines for ebola work against the Zaire strain, but not the Sudan type.
 - ✓ The vaccines are also expensive to produce.
 - ✓ But the shot set to be manufactured by SII, through collaboration with Oxford University, has been shown to induce an immune response against both the Sudan and Zaire strains.
 - ✓ Pune-based SII received the master viral seed developed by Oxford on October 14.
 - ✓ The seed will be subsequently used to inoculate the cell bank for the purpose of producing the vaccine doses.
 - ✓ Besides its effectiveness against both strains of ebola, the shot will also be cheaper
 - ✓ The vaccine will be offered free of cost to 20,000 healthy adult volunteers in Uganda as part of the human trials.
 - ✓ The vaccine is based on the ChAdOx1 virus, a weakened version of a common cold virus (adenovirus) that has been genetically modified to stop it from replicating in humans.
 - ✓ This vector platform was previously used successfully in the ChAdOx1 nCoV-19 vaccine —or the Oxford-AstraZeneca-Serum vaccine, also called Covishield in India.
 - ✓ Covishield was produced at the SII's Pune facility with a master seed from Oxford University and pharmaceutical company AstraZeneca.
- **The government - has wound up the 24-year-old Multi-Disciplinary Monitoring Agency (MDMA) constituted to probe the wider conspiracy into the assassination of former Prime Minister Rajiv Gandhi**
- ✓ MDMA was working under the Central Bureau of Investigation (CBI)

- ✓ It comprised officers from multiple central security agencies like the Intelligence Bureau, RAW, Enforcement Directorate, and the Department of Revenue Intelligence.
 - ✓ The agency was set up in 1998 for two years on the recommendation of MC Jain Commission and was given annual extensions, but it failed to achieve any major breakthrough
 - ✓ The MDMA — initially headed by a joint director-ranked officer before being handed over to the DIG — did not bring on record any startling revelation about the conspiracy
 - ✓ It had sent 24 Letters Rogatory to countries like Sri Lanka, the United Kingdom and Malaysia seeking information on various aspects of the case, including banking transactions
 - ✓ Rajiv Gandhi was assassinated by an LTTE suicide bomber named Dhanu during an election rally in Tamil Nadu's Sriperumbudur on May 21, 1991.
- **Union Minister of Education, Dharmendra Pradhan - has launched the draft of National Credit Framework (NCF) for public consultation recently on October 19, 2022**



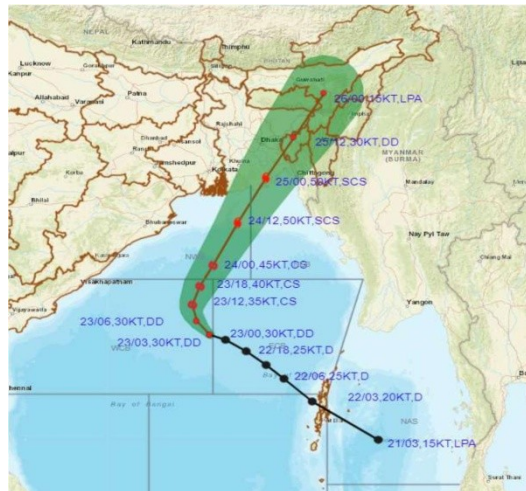
- ✓ The first 'National Credit Framework' (NCrF) seeks to integrate the credits earned by the students through school education, higher education and vocational and skill education.
- ✓ While a credit-based framework is already in place in technical and higher education, it will be the first time that school and vocational education will be included
- ✓ So far, only the National Institute of Open Schooling followed a credit system.
- ✓ The framework has been drafted by a 11-member committee headed by National Council of Vocational Education and Training (NCVET) chairperson Nirmaljeet Singh Kalsi.
- ✓ Under the framework, a student shall have to earn at least 40 credits for completing a year of school education after putting in 1200 hours of "notional learning hours", which includes a range of co-curricular and extracurricular activities

- ✓ The list of such activities include sports, yoga, performing arts, music, social work, NCC, vocational education, as well as on the job training, internships or apprenticeships.
 - ✓ Besides, credits will be assigned to students for online programmes to expand open and distance learning options
 - ✓ According to the draft, credits will be assigned on the basis of learning hours from class 5 to PhD level
 - ✓ The NCrf will be operationalised through the Academic Bank of Credits (ABC).
 - ✓ The University Grants Commission, India's higher education regulator, last year launched the ABC for higher education, which acts as a digital repository of credits earned by students
 - ✓ The NCrf will be launched as a part of the implementation of the National Education Policy (NEP) 2020
- **The United Kingdom's Queen Consort Camilla - landed in Bengaluru on a private visit for her first overseas tour.**



- ✓ After arriving, she travelled by road for nearly 40 km from Kempegowda International Airport to Soukya, a holistic health and wellness centre near Whitefield.
 - ✓ She'll be undergoing rejuvenation therapies during her nearly 10-day visit.
 - ✓ The 75-year-old Camilla, wife of King Charles III, was accompanied by a few friends and escorted by members of Royalty and Specialist Protection, an elite force of Scotland Yard.
- **On October 22, the India Meteorological Department (IMD) - predicted that a new cyclone will cross Bangladesh coast between Tinkona Island and Sandwip around October 25 early morning**
- ✓ The first tropical cyclone of the post-monsoon season of 2022 is likely to form in the east-central Bay of Bengal on October 24
 - ✓ Once formed, this will be the first cyclone to develop in the Bay of Bengal in October since 2018, and will be called Sitrang, as named by Thailand
 - ✓ The name is one of 169 storms identified by IMD since the year 2020.
 - ✓ IMD identifies the cyclones that originate across the north Indian Ocean, encompassing the Arabian Sea and the Bay of Bengal.

- ✓ The IMD issues tropical cyclone and storm surge warnings to thirteen members: Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates, and Yemen
- ✓ The name was selected at random from a list of possible titles organised both alphabetically and geographically.
- ✓ The last October cyclone in the Bay of Bengal was Titli in 2018.
- ✓ Further, this will be the year's second cyclone after Cyclone Asani, which formed in the Bay of Bengal in early May of this year



- ✓ Its impact will be felt in Odisha and West Bengal, where moderate to heavy rainfall will be witnessed, apart from the North eastern states
 - ✓ The National Crisis Management Committee (NCMC) reviewed the preparedness of central and state agencies to deal with the situation.
- **India's largest and heaviest egg weighing 210g – was laid by a chicken of Hyline W-80 breed at a poultry farm in Talsande village of Maharashtra's Kolhapur district**



- ✓ Till now, the heaviest chicken egg, as recorded in the Limca Book of Records, weighed 162g and it was laid by a chicken in Punjab.
- ✓ Usually, chicken eggs weigh between 54-100g and in rare cases, eggs can weigh up to 140g.

INTERNATIONAL

- **Far-right leader Giorgia Meloni - was sworn in as Italian prime minister at the Quirinal Palace in Rome on October 22**



- ✓ Meloni becomes the first woman to head a government in Italy.
 - ✓ Her Brothers of Italy party was the top vote-getter in the national elections held on September 25
 - ✓ Her coalition allies include the right-wing League of Matteo Salvini and the conservative Forza Italia party headed by former Premier Silvio Berlusconi.
 - ✓ Meloni is Italy's first far-right premier since the end of World War II
- **The World Health Organisation and its partners – have started recommending the countries to switch to a single dose vaccination strategy instead of the standard two-dose regimen for cholera vaccination**
 - ✓ This was announced by the International Coordinating Group (ICG) amidst a rapid increase in cholera cases globally and shortages in cholera vaccine supply
 - ✓ Even though the temporary suspension in the two dose regimen can lead to a reduction and shortening of immunity, the decision will allow more people to be vaccinated and provide them the protection in the near term
 - ✓ With two doses, when the second dose is given within six months of the first, immunity against infection lasts for three years.
 - ✓ Earlier, the maker of one of only two cholera vaccines for use in humanitarian emergencies, an Indian subsidiary of French pharmaceutical giant Sanofi, has said it will halt production by the end of the year
 - ✓ According to the ICG, one dose of vaccine has proven effective in stopping outbreaks
 - ✓ The ICG is responsible for distributing emergency oral cholera vaccines across the countries
 - ✓ It was set up in 1997 following the major outbreak of meningitis in Africa.
 - ✓ It includes the WHO, the children's agency UNICEF, the Doctors Without Borders (MSF) charity, the International Federation of Red Cross and Red Crescent Societies
 - ✓ According to the WHO report, 29 countries, including Haiti, Malawi and Syria, are facing large outbreaks since the beginning of the year

- ✓ Cholera is an acute diarrhoeal infection in the small intestine generally contracted from food or water contaminated with vibrio cholera bacteria.
- ✓ The disease often causes no or mild symptoms, but serious cases cause acute diarrhoea and can kill within hours if untreated

INDIA AND OTHER COUNTRIES

- **Union Defence Minister, Rajnath Singh - launched the 'India-Africa Security Fellowship Programme' during the second edition of India-Africa Defence Dialogue (IADD) recently**
- ✓ The India-Africa Defence Dialogue (IADD) was held on the sidelines of DefExpo 2022 in Gandhinagar, Gujarat on October 18, 2022



- ✓ During the Dialogue, a book titled 'India-Africa Defence Cooperation: Opportunities and Challenges' was released.
- ✓ A total of 50 African countries participated in this event held under the theme 'Adopting Strategy for Synergizing and Strengthening Defence and Security Cooperation'
- ✓ After the end of the Defence Dialogue, the Gandhinagar Declaration was adopted towards enhancing the India-Africa defence and security partnership.
- ✓ Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) is the knowledge partner for the IADD
- ✓ The MP-IDSA will act as the host of the India-Africa Security Fellowship Programme
- ✓ The fellowship will give an opportunity to African scholars to pursue research on defence and security issues in India.
- ✓ The fellows would be attached with the MP-IDSA for a period of 1-3 months, during which a stipend would also be provided to the scholar.

CONFERENCES & SUMMITS

- **The International Solar Alliance (ISA) – has approved the introduction of 'Solar Facility' at its fifth general assembly meeting held recently in New Delhi on October 18, 2022**

- ✓ “Solar Facility” is a financial mechanism expected to stimulate investments in solar power through payment guarantee and insurance funds.



- ✓ During the meeting, Union power minister RK Singh got re-elected as the president of the ISA for the next two years
- ✓ In the meeting, France also got re-elected as the Co-President of ISA Assembly
- ✓ Chrysoula Zacharopoulou, France's Minister of State for Development, Francophonie and International Partnerships, will be co-president of the International Solar Alliance
- ✓ The “Solar Facility” is expected to drive investments in the solar sector, especially in Africa, through two financial components - solar payment guarantee fund and solar insurance fund
- ✓ The ISA will soon operationalise Solar Facility to crowd-source investments from various donors across the globe
- ✓ It had proposed projects in Africa utilizing purchase payment guarantees or partial insurance premium from these funds
- ✓ According to the Minister, the objective of ISA now will be to give electricity access to about 700 million people, who currently do not have electricity access, through renewable energy.
- ✓ He also announced that France will soon sign an agreement with India in furthering the green hydrogen mission of the country
- ✓ The ISA Assembly also approved the SolarX Grand Challenge, which is planned to focus on innovation and start-ups, particularly decentralised solar energy applications that contribute to livelihoods, such as agriculture, health, and small-scale industrial applications
- ✓ The ISA is an international organisation with 110 member and signatory countries, having its headquarters in Gurugram
- ✓ It is an initiative launched by India and France on the side-lines of COP-21, Paris in 2015
- ✓ ISA's mission is to unlock \$1 trillion of investments in solar by 2030

- ✓ It promotes the use of solar energy in the agriculture, health, transport and power generation sectors.
- ✓ The first ISA Assembly Meeting was organized in 2018 in Greater Noida with the adoption of Delhi declaration
- **The first-ever Metaverse specifically intended for “law enforcement worldwide” - was introduced by International Criminal Police Organization (Interpol) at the 90th Interpol General Assembly in New Delhi on October 20, 2022**



- ✓ Prominent police officers from its 195 members attended the general assembly from October 18 to October 21
- ✓ The Interpol metaverse is a fully functional platform that enables registered users to interact with other officers through their avatars using virtual reality headsets.
- ✓ Interpol metaverse will allow users to visit a virtual replica of the Interpol General Secretariat headquarters in Lyon, France, without any physical or regional limits
- ✓ It also allows officers to enroll in immersive training programs in forensic investigation and other crime control abilities
- ✓ The World Economic Forum has partnered with the Interpol, Meta, Microsoft and others in this initiative to define and govern the metaverse

SCIENCE, TECHNOLOGY & ENVIRONMENT

- **Indian Space Research Organisation (ISRO) - launched its first dedicated commercial mission of Launch Vehicle Mark 3 (LVM3) M2 satellite successfully from the Sathish Dhawan Space Centre, Sriharikota on the midnight of October 22**



- ✓ Isro's heaviest rocket LVM3-M2 successfully placed 36 broadband communication satellites into the polar low earth orbit for UK-based OneWeb.
- ✓ The vehicle is also dubbed as one of the heaviest for its ability to carry satellites up to 8,000 kg.
- ✓ According to ISRO, the vehicle carried the heaviest payload and becomes the first Indian rocket to launch a payload of 5,796 kg
- ✓ The launch is also first for LVM3-M2 to place the satellites in the Low Earth Orbit (LEO-up to 1,200 kms above the Earth) unlike Geosynchronous Transfer Orbit (GTO).
- ✓ ISRO scientists had renamed the launch vehicle as LVM3-M2 from GSLV-Mk III as the newest rocket is capable of launching 4,000 kilograms class of satellites into GTO and 8,000 kg of payloads into LEO
- ✓ The 43.5 m tall rocket is a three-stage launch vehicle consisting of two solid propellant S200 strap-ons on its sides and core stage comprising L110 liquid stage and C25 cryogenic stage.
- ✓ All the 36 satellites were injected into their intended orbits around 75 minutes after the rocket blasted off from the spaceport
- ✓ This is the first time the OneWeb is using an Indian rocket to put its satellites into orbit
- ✓ Former ISRO chiefs K Sivan and AS Kiran Kumar and Bharti Enterprises founder-chairman Sunil Mittal among others witnessed the launch from the Mission Control Centre
- ✓ Another set of 36 satellites from OneWeb is planned to be put into orbit in January 2023
- ✓ OneWeb Ltd is the UK-based customer of NewSpace India Ltd (NSIL), ISRO's commercial arm and a central public sector enterprise under the Department of Space
- ✓ It is a global communication network powered from space, enabling internet connectivity for governments and businesses
- ✓ India's Bharti Enterprises is a major investor and shareholder at OneWeb, a private satellite communications company

- ✓ OneWeb is implementing a constellation of 588 satellites in the Low Earth Orbit and they will be arranged in 12 rings with 49 satellites in each plane in the process of building up a constellation
- ✓ Each satellite will complete a full trip around the earth every 109 minutes.

DEFENCE

- **INS Sindhuratna - will be transported by sea from Severodvinsk in Russia to Mumbai in February after the “medium refit-cum-life certification”.**



- ✓ The diesel-electric submarine is the second of the four old Russian Kilo-class submarines to undergo the modernisation upgrade, each costing around 1,400 crore
- ✓ It was damaged in a fire in February 2014 and has been sent to Russia for refitting
- ✓ The Navy will also commission the fifth of the six new French-origin Kalvari-class Scorpene submarines being built at Mazagon Docks under the over 23,000 crore 'Project-75' by mid-2023, with the last one following in 2024.
- ✓ They will be commissioned as INS Vagir and INS Vagsheer.
- ✓ With advanced stealth features, the Scorpenes are equipped with both long-range guided torpedoes as well as antiship missiles as well as advanced sonars and sensor suites.
- ✓ The fourth Scorpene commissioned last November, INS Vela, returned to its home port at Mumbai on October 15 after an eight-and-a-half month long cross-coast deployment across the Indian Ocean Region (IOR)

SPORTS

- **The upcoming men's soccer World Cup in Qatar - will be the first to feature female referees, with three women set to make history**

- ✓ France's Stephanie Frappart, Rwanda's Salima Mukansanga and Japan's Yoshimi Yamashita were included in the list of 36 referees selected by FIFA



- ✓ Further, three more women - Neuza Back of Brazil, Mexico's Karen Diaz Medina and Kathryn Nesbitt of the United States - will head to Qatar as assistant referees.
- ✓ The 38-year-old Frappart was the first woman to referee in France's Ligue 1 in 2019
- ✓ In the same year, Frappart took charge of the women's World Cup final in her home country.
- ✓ Yamashita, who is two years younger than Frappart, became the first woman to referee an Asian Champions League match in 2019.
- ✓ Mukansanga, 34, became the first woman to take charge of a match at the men's Africa Cup of Nations in January this year.

RANKINGS

- **India – was ranked at 41st place out of 44 countries, as per the 2022 Mercer CFA Institute Global Pension Index survey (MCGPI).**
- ✓ Last year, India was ranked at 40th place out of 43 countries and in 2020, the country was ranked at 34th place out of 39 countries
- ✓ India had an overall index value of 44.4 this year as against 43.3 in 2021
- ✓ Globally, Iceland had the highest overall index value (84.7), closely followed by the Netherlands (84.6) and Denmark (82.0).
- ✓ Israel, Finland and Australia are the other countries ranked at 4th, 5th and 6th place respectively in the rankings recently released.
- ✓ Thailand had the lowest index value (41.7) and was placed at the bottom of the rankings at 44th place
- ✓ Argentina and Philippines were ranked at 42nd and 43rd places.
- ✓ The MCGPI is a comprehensive study of 44 global pension systems, accounting for 65% of the world's population
- ✓ It analyses retirement income systems around the world, highlighting shortcomings and suggesting possible areas of reform that would help provide more adequate and sustainable retirement benefits.

NEW TREATMENT FOR CANCER - REPORT

- The safety trials for India's first indigenously made CAR-T cells- have shown promising results for patients of leukemia
- ✓ CAR-T cells are a new form of immunotherapy of cancer treatment

TREATMENT IN INDIA WOULD COST A 10TH OF ₹3-4CR IN US

CANCER & TREATMENT

- Cancer is a disease in which some cells grow uncontrollably and destroy body tissues
- It is the cause for nearly 1 in 6 deaths across the world

Mainstays of cancer treatment have been:

- Surgery**
- Chemotherapy**
- Radiation therapy**

NEWER THERAPIES | IMMUNOTHERAPY

- Immunotherapy emerged in past decade; involves using body's immune system to attack cancer cells
- It's early days yet, but it is known to shrink/eradicate tumours in some people with advanced cancer
- Results can last for a few years in a small percentage of patients
- A type of immunotherapy called 'immune checkpoint inhibitors' used in cancers of lung, kidney, bladder, melanoma and lymphomas

THE PROCESS

- White blood cells include T cells whose main task is to tackle specific foreign particles
- CAR-T stands for chimeric antigen receptors that are made in the laboratory
- T cells are collected from the patient and re-engineered in a laboratory
- Millions of the re-engineered T cells are made
- CAR proteins
- Grow million of CAR T cells
- Infuse CAR T cells onto patient
- Cancer cell
- Antigen

CAR-T CELLS

- Another emerging immunotherapy is CAR-T cell therapy
- It is used for blood cancers, including lymphomas, some forms of leukaemia, and multiple myeloma
- It has also been called a "living drug"

DRAWBACKS

- So far, long-term survival has been seen in fewer than half of the patients treated
- They are costly, running into crores for a single infusion

NOW

- A "first in India" gene therapy has been developed by IIT Bombay and Tata Memorial Hospital
- With ₹19.5cr funding from BIRAC (Biotechnology Industry Research Assistance Council), safety trials were conducted on at least 16 patients—10 adult patients for lymphoma and 6 patients (under 25 years) for leukaemia
- Doctors said the safety trials were encouraging
- Treatment costs ₹3-4cr in the US, but would cost a 10th in India

- ✓ It involves re-engineering the body's T immune cells with some genetic material so that they selectively target cancer cells for destruction.
- ✓ The project is a joint effort between IIT-Bombay and Tata Memorial Centre, Mumbai
- ✓ This made-in-India therapy's cost will be a 10th of its cost in the US.
- ✓ Last month, the project team announced "encouraging" results of the Phase 1 trial for 10 patients with lymphoma.

- ✓ Each of these patients had received three to five lines of therapy, including previous stem cell transplant, but in vain.
- ✓ American youngster Emily Whitehead was the first patient in the world to undergo CAR-T cell therapy 10 years back.
- ✓ She didn't need any therapy thereafter and has been cancer free since 2012.

