

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

1. China became the first country to approve a needle-free, inhaled version of a Covid 19 vaccine. The vaccine has been developed by CanSino Biologics Inc. (Sept. 5, 2022)

China became the first country to approve a needle-free, inhaled version of a Covid 19 vaccine. The vaccine has been developed by CanSino Biologics Inc.

This is a developing new.

2. ISRO successfully tests IAD technology to land missions on Mars, Venus (Sept. 5, 2022)

The Indian Space Research Organization (**ISRO**) on September 3 successfully test-fired the **Inflatable Aerodynamic Decelerator (IAD)** which will be used to land payloads on **Mars or Venus** in the future.

Important facts

- IAD was designed, developed and successfully test-flown by **ISRO's Vikram Sarabhai Space Centre (VSSC)** on a **Rohini-300 (RH300 Mk II) rocket**.
- It was tested from the **Thumba Equatorial Rocket Launching Station (TERLS)** at **Thiruvananthapuram, Kerala**.
- The IAD is being developed to reduce an object coming down from space through the atmosphere.
- As its name suggests, the IAD serves to slow down an object falling through the atmosphere.
- For demonstration, the IAD, made of Kevlar fabric coated with Polychloroprene, was packed into the payload of the rocket.
- The pneumatic system used to propel the IAD was developed by the **Liquid Propulsion Systems Center (LPSC), Waliamala**.
- The 6.3 m tall, Rohini RH 300 Mk II sounding rocket had a lift-off mass of 552 kg.

3. NGT imposes Rs 3,500 crore penalty on Bengal Govt for huge gap in waste management (Sept. 5, 2022)

The National Green Tribunal(NGT) headed by Justice A K Goel has imposed a fine of **Rs 3,500 crore on the West Bengal government** for the huge gap in solid and liquid waste generation and treatment.

The NGT noted that out of 2,758 million litres per day (MLD) of sewage generation in urban areas and the treatment capacity of 1505.85 (MLD), only 1268 MLD is reported to be treated, leaving a huge gap of 1490 MLD.

The green panel said the state government does not appear to be prioritising setting up of sewage and solid waste management facilities though according to the state's budget for 2022-2023, there is provision of Rs 12,818.99 crore on Urban Development and Municipal Affairs.

Observing that health issues cannot be deferred to the long future, a bench headed by NGT Chairperson Justice A K Goel said it is the constitutional responsibility of the state and the local bodies to provide a pollution free environment.

The state government will have to deposit the fine amount in a fund which will be used to construct the treatment plant for waste.

National Green Tribunal :

- It deals with cases relating to the environment protection and conservation of forest.
- It was set up in 2010 under the National Green Tribunal Act 2010.
- The Tribunal is not bound by the procedure laid down under the **Code of Civil Procedure, 1908**, but is guided **by principles of natural justice**.
- **New Delhi** is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata and Chennai are other four places of sitting of the Tribunal.

Chairperson: Justice Adarsh Kumar Goel

4. DST to set up India's first-ever Night Sky Sanctuary in Ladakh (Sept. 4, 2022)

The Department of Science and Technology (DST), Government of India will set up India's first-ever Night Sky Sanctuary in Ladakh. It will be completed within the next three months.

This was disclosed by the Union Minister of State (Independent Charge) Science & Technology; Atomic Energy and Space, Dr Jitendra Singh after meeting **Lt. Governor Ladakh, R.K. Mathur** on 3 September 2022 at New Delhi .

Where it is being set up ?

The proposed Dark Sky Reserve will be located at **Hanle in Ladakh** as a part of **Changthang Wildlife Sanctuary**.

It will boost Astro tourism in India and will be one of the world's highest-located sites for optical, infrared, and gamma-ray telescopes.

Who will set up ?

The Union Minister informed that a tripartite Memorandum of Understanding was signed recently among the Ladakh Union Territory administration, Ladakh Autonomous Hill Development Council Leh and the **Indian Institute of Astrophysics, Bengaluru** for launching the Dark Space Reserve.

5. India's first indigenously developed vaccine for cervical cancer launched (Sept. 1, 2022)

India's first indigenously developed **quadrivalent Human Papilloma Virus (HPV)** vaccine for the prevention of cervical cancer launched by Union Minister of Science and Technology **Jitendra Singh** in Delhi on 1 September.

IMPORTANT FACTS -

- The name of the vaccine is **CERVAVAC**.
- The Drug Controller General of India (DCGI) has given market authorization to Serum Institute of India (SII) to manufacture indigenously developed vaccine against cervical cancer.
- Cervical cancer is the second most frequent cancer in women in the age group of 15 to 44 years in India.

About CERVAVAC :

- Vaccine CERVAVAC has demonstrated robust antibody response that is approximately 1,000-fold higher based on all targeted HPV types and age groups.
- This vaccine protects women from cervical cancer.
- It has been developed by the **Serum Institute of India (SII)**.
- This vaccine will ensure the prevention of cancer caused by human papillomavirus (types 6, 11, 16 and 18).

About Cervical Cancer :

- It is a sexually transmitted infection.
- It occurs in the cells of the **cervix** (the lower part of the uterus) that connects to the vagina.
- It is mostly caused by long-term infection with **HPV**.
- It is the **second most prevalent cancer** form and the second leading cause of cancer death among women **aged 15-44**.
- Women who have HIV are six times more likely to develop cervical cancer than normal women.

Drugs Controller General of India (DCGI) :

- It comes under the **Central Drugs Standard Control Organisation (CDSCO)**.
- It is responsible for approval of licences of specified categories of drugs like blood and blood products, vaccines, IV fluids and sera in India.
- It sets the standards and quality of the manufacture, sale, import and distribution of drugs in India.

6. NASA postpones launch of Artemis 1 mission to Moon due to malfunctioning core stage engine (Aug. 30, 2022)

NASA has postponed the launch of the **Artemis 1** mission to the Moon on August 29 due to a faulty core stage engine.

IMPORTANT FACTS -

- The launch was postponed due to fuel leakage and engine problems.
- After many years of hard work, the US space agency was going to send its mission to the Moon.
- The mission is important because in view of its success, humans have to be sent to the moon in the future.
- Once launched, Artemis 1 will test the Orion spacecraft, which will orbit the Moon and one day take human crew members there.
- The cost of Artemis 1 is estimated at \$4 billion.

What is Artemis 1?

- It is named after the mythical twin sister of **Apollo, Artemis**.
- This spacecraft is the world's most powerful rocket, capable of carrying more payloads into deep space than any other vehicle.
- The first flight of the new **Space Launch System (SLS)**, Artemis 1 is a heavy-lift vehicle.
- Artemis 1 is an uncrewed mission.
- It will have three test dummies – **Helga, Zohar and Moonikin Campos** – equipped with sensors to measure vibrations, cosmic radiation and other conditions.
- During the six-week long mission, Artemis 1 and the capsule will cover a distance of about 65,000 km to the Moon.

Why was the launch postponed?

- The launch was postponed due to a fault in the RS-25 engine, which had to be mixed with liquid hydrogen and oxygen to condition it before launch.
- One of its engines was not bleeding as expected.
- The launch was postponed because the launch team was unable to resolve these issues.
- A crack was also visible on the side of the inner tank.

About Artemis 1 mission :

- For the first time in 50 years since the end of the Apollo program, the launch of Artemis 1 is an ambitious US mission to return astronauts to the surface of the Moon.
- The Artemis 1 launch will also be the first flight of NASA's 21st century moon-exploration program.
- With Artemis 1 on the surface of the Moon, NASA aims to demonstrate new technologies, business approaches and capabilities that are essential for future explorations, including Mars.
- The launch aims to further aid in the study of the Moon, its origin and history.

ISRO's Moon Exploration Mission :

- Chandrayaan 1
- Chandrayaan-2
- The Indian Space Research Organization (ISRO) recently announced India's third lunar mission **Chandrayaan-3**, which will consist of a lander and a rover.

7. NASA's James Webb Space Telescope captures new images of Jupiter (Aug. 24, 2022)

NASA has released unprecedented images of the planet Jupiter taken by the James Webb Telescope, the world's most powerful telescope, which scientists hope to give more information about the planet.

IMPORTANT FACTS -

- In this picture, many other features of the planet Jupiter have come out, usually the Great Red Spot, which looks red in color, is seen in white.
- In the picture, the brightness of the aurora i.e. Northern and Southern Lights are visible at the north and south poles of the planet Jupiter.
- Apart from this, in a wide-field picture, all parts of this planet are visible in a line.
- Its dim ring and two of its satellites i.e. the moons Amaranthea and Adrastea are visible. Shining stars are visible in the galaxy behind them.

About Jupiter Planet :

- Jupiter is the largest planet in the solar system.
- Jupiter, Saturn, Uranus and Neptune are called Jovian or gas giant planets. It is composed mostly of hydrogen and helium.
- It has rings, but they're very hard to see.
- It has 79 confirmed moons.
- It is the fifth planet from the Sun, that means Mars and Saturn are Jupiter's neighbouring planets.
- It rotates once in about 10 hours (a Jovian day), but takes about 12 Earth years to complete one orbit of the Sun (a Jovian year).
- It has large storms like the Great Red Spot, which have lasted for hundreds of years.

James Webb Space Telescope :

- NASA's James Webb Space Telescope was launched by rocket on 25 December 2021 from South America's north-eastern coast.
- It is the most powerful infrared telescope ever launched by NASA.

- It has been built in collaboration with NASA, the European Space Agency (ESA) and the Canadian Space Agency.
- It has opened a new era of astronomy.
- Its goal is to search for the first galaxies that formed after the Big Bang.
- It will reveal new and unexpected discoveries, and help to understand the origins of the universe and the human position.
- It reached its destination in solar orbit about 1.6 million km from Earth after travelling 2 weeks in space.
- It is also considered a successor of the Hubble Telescope which was launched into low Earth orbit in 1990.

8. India's first observatory to be set up in Uttarakhand to monitor space activity (Aug. 24, 2022)

India's first commercial space observatory will be built in the Garhwal division of Uttarakhand by Digantara, a startup started in the field of space.

IMPORTANT FACTS -

- It will also be able to keep an eye on an object as small as 10 cm orbiting the Earth.
- With the help of this observatory, scientists will be able to keep an eye on every movement of deep space. In particular, monitoring of deep activity in geostationary, middle-Earth and high-Earth orbits will be possible.
- This observatory will also give India indigenous capability to monitor space activity on the subcontinent. For example, if Chinese satellites are observed over a particular area of India for a long period of time, it is an advantage for India to have indigenous capability without relying on countries like the US to monitor these activities.
- With the help of the information received from this observatory, collisions between satellites and other spacecraft can be avoided. A more accurate estimate can be made about their location, speed and trajectory.
- At present, the US dominates the region. It has the most such observatories to monitor space activities. Its observatories are stationed at various places and commercial companies provide inputs for them from all over the world.

Startup Digantara :

- Its full name is Digantara Research and Technology Private Limited.
- Launched in December 2018, the main focus of this startup is to track the waste being collected due to satellites in space and find solutions.
- Its headquarter is in Jalandhar, Punjab.

9. DRDO test fire indigenous Vertical Launch Short Range surface-to-air missile (Aug. 24, 2022)

Defence Research and Development Organisation (DRDO) and Indian Navy successfully flight tested Vertical Launch Short Range Surface to Air Missile (VL-SRSAM) on 23 August.

IMPORTANT FACTS -

- The missile was test fired from the Integrated Test Range at **Chandipur** off the coast of Odisha.
- The flight test was conducted from an Indian Navy ship against a high speed unmanned aerial target.
- During the test launch, flight path and vehicle performance parameters were monitored using flight data captured by various instruments such as Radar, Electro-Optical Tracking System (EOTS), and Telemetry System deployed by ITR, Chandipur.

Short Range Surface to Air Missile (VL-SRSAM) :

- It is a ship-borne weapon system capable of neutralising various airborne threats at close range, including sea-skimming targets.
- The strategy of sea skimming is used by various anti-ship missiles and some fighter aircraft to avoid detection by radar on warships.
- They fly very close to the ocean surface and thus are difficult to detect and neutralise.

Design of VL-SRSAM Missile :

- This missile is indigenously designed and developed by DRDO.
- Its design is based on Astra missile which is a Beyond Visual Range Air-to-Air missile.
- Astra is India's first air-to-air missile, developed by the Defence Research and Development Organisation.

ADDITIONAL INFORMATION -

Main features of VL-SRSAM Missile :

- It has two key features - cruciform wings and thrust vectoring.
- The cruciform has four small wings arranged like a cross on all four sides and provides a stable posture to the projectile.
- Thrust vectoring, on the other hand, helps to change the angular velocity from its engine and the direction of thrust that controls the missile.

- The missile weighs 154 kg and its length is about 12.6 feet.
- It is designed to strike high-speed air targets at a range of 40 to 50 km and at an altitude of about 15 km.

10. Tomato flu spreading in India - Lancet warns (Aug. 23, 2022)

Following the COVID-19 pandemic and the ongoing monkeypox, the Lancet has warned India about a new infectious disease, Tomato Flu or Tomato Fever.

IMPORTANT FACTS -

- It was first identified in the Kollam district of Kerala on May 6, 2022.
- On July 26 in local government hospitals, more than 82 children under the age of 5 have been confirmed to be infected with the disease.
- This endemic viral disease has put the neighbouring states of Tamil Nadu and Karnataka on alert.
- In addition, 26 children (1-9 years of age) have been confirmed for the disease by the Regional Medical Research Centre, Bhubaneswar in Odisha.

What is Tomato Flu ?

- It is a rare viral disease that causes red blisters, skin irritation and dehydration.
- The blisters that occur in this disease look like a tomato, hence it is called tomato flu.
- It is a form of hand, foot and mouth disease (HFMD).
- It is caused by **Coxsackie virus A 16**. It belongs to **Enterovirus family**.
- The disease is rare in adults because they usually have an immune system strong enough to defend against the virus.

Symptoms of the disease :

- Blisters
- Diarrhoea
- Dehydration
- In some cases, the discoloration of the hands and knees also fades.

Treatment of the disease :

- It is a self-limiting disease and there are no specific drugs for it.

- It is similar to chikungunya and dengue, utensils, clothes and other items used by the
- infected persons must be sanitised to prevent the flu from spreading.
 - Fluid intake should be increased to counter dehydration.