



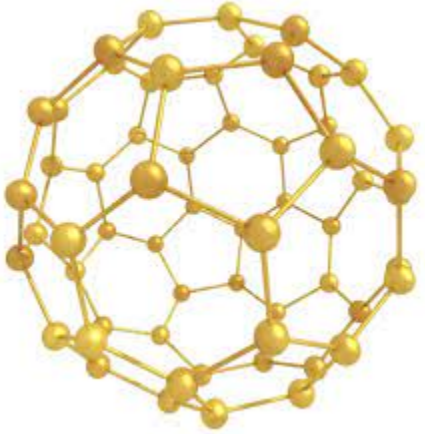


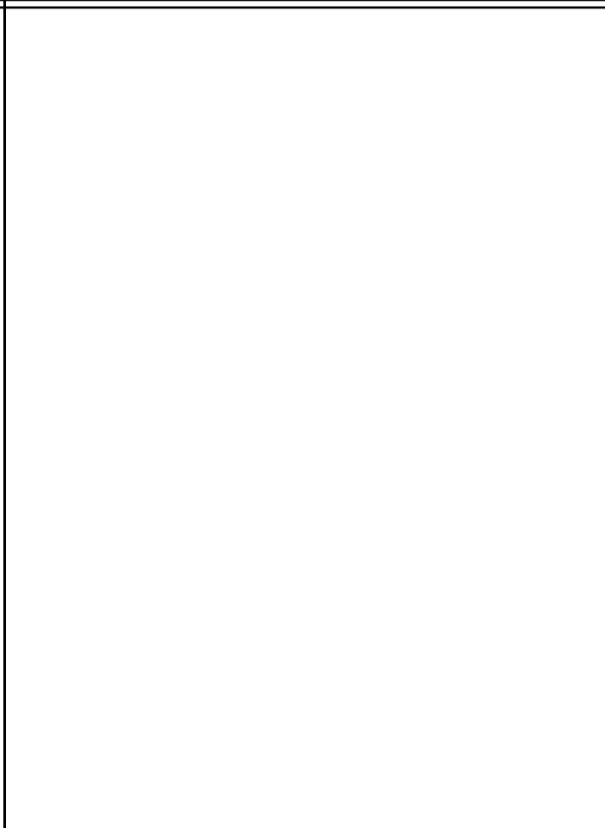
13 March 2024

National and International News

<p>Cutlass Express 24</p> 	<p>Context:</p> <ul style="list-style-type: none"> • The Indian Navy led the maritime exercise "Cutlass Express" – 24 with INS Tir at Port Victoria, Seychelles. • The exercise involved active engagement with participants from 16 friendly foreign countries. <p>Training Activities:</p> <ul style="list-style-type: none"> • The training encompassed theoretical and practical aspects of Maritime Interdiction Operations, Visit Board Search and Seizure (VBSS) procedures, and Diving operations. • During the sea phase, the VBSS team of INS Tir boarded the Seychelles Coast Guard ship LE Vigilant, showcasing boarding operation procedures. • Joint diving operations were conducted by Indian, US, and Seychelles divers after intensive training. <p>INS Tir:</p> <ul style="list-style-type: none"> • INS Tir (A86) is the first dedicated cadet's training ship to be built by Mazagon Dock Limited and commissioned as such by the Indian Navy. • She is the senior ship of the 1st Training Squadron of the Southern Naval Command. • INS Tir was commissioned on 21 February 1986.
<p>INS Tushil</p> 	<p>Context: INS Tushil, India's latest naval asset, began its sea trials from Russia's Baltiysk naval base on March 5.</p> <p>Key points:</p> <ul style="list-style-type: none"> • INS Tushil belongs to the Talwar-class frigates, known for their stealth-guided missile capabilities. • These frigates are upgraded versions of the Russian Krivak III-class frigates, originally used by the Coast Guard. • The Indian Navy currently operates six of these ships, with four more under construction, including two at India's Goa shipyard. • These ships incorporate "stealth technology" to



	<p>minimize radar and underwater noise detection.</p> <ul style="list-style-type: none"> • They are equipped with Indian and Russian weaponry, including surface-to-surface missiles, sonar systems, surveillance radar, communication suites, anti-submarine warfare systems, surface-to-air missiles, and gun mounts. • Designed for combat in brown and blue waters, they can engage submarines, warships, and repel air attacks independently or in formations. • The frigates have a displacement of 3620 tons, a length of 124.8 meters, a top speed of 30 knots, and a cruising range of 4850 miles. <p>Project 11356M:</p> <ul style="list-style-type: none"> • In October 2016, India and Russia signed an Inter-Governmental Agreement (IGA) for four Admiral Grigorovich-class frigates (Project 11356M). • Russia agreed to deliver two frigates, including INS Tushil and INS Tamala, while India would build the other two domestically. • The construction of these ships is tailored to meet the Indian Navy's requirements for comprehensive naval warfare capabilities in air, surface, and sub-surface domains.
<p>Gold Nanoparticles</p> 	<p>Context:</p> <ul style="list-style-type: none"> • Often referred to as 'gold bhasma,' gold nanoparticles are recognized for their therapeutic and beautifying properties in skincare. • They protect the skin from external infestations, combat aging, improve metabolism, and rejuvenate the body. <p>Key points:</p> <ul style="list-style-type: none"> • Gold nanoparticles (AuNPs) are tiny particles made of gold atoms, typically ranging from 1 to 100 nanometers in size. • They possess unique optical, electronic, and catalytic properties due to their small size and shape. <p>Benefits</p> <ul style="list-style-type: none"> • Easily absorbed by the skin, they act as a rejuvenator, potentially benefiting various systems of the human body. • Integral to various Ayurvedic preparations, they are known for their rejuvenating,



immuno-modulating, beautifying, and healing properties.

- They **slow down collagen depletion, stimulate cell regeneration, improve metabolism, and tone up muscles.**
- They strengthen underlying tissue, bones, and nerves, contributing to a youthful appearance.
- Innovative formulations like sparkling gold face washes enriched with gold nanoparticles and natural ingredients offer potent skincare solutions.

Applications

- **Biomedical:** Used in imaging, therapy, and diagnostics, serving as contrast agents in X-ray, computed tomography (CT), and photoacoustic imaging, and facilitating photothermal therapy and drug delivery.
- **Catalysis:** Exhibit remarkable catalytic activity in various chemical transformations.
- **Electronics:** Used in nanoelectronic devices, conductive inks, and sensors.
- **Environmental Remediation:** Employed in detecting and removing pollutants from water and soil.

India's indigenous fifth gen fighter jet AMCA

FUTURE'S FIGHTER

Stealth aircraft are designed to avoid detection by enemy radars and radar-guided weapons. India's Advanced Medium Combat Aircraft (AMCA) Mark-1 will be a fifth-generation stealth aircraft.

LENGTH
17.6m

WINGSPAN
11.13m

MAXIMUM TAKE-OFF WEIGHT
25,000kg

MAXIMUM SPEED
2,600 kmph (Mark 2.15)

COMBAT RANGE
1,620km

SERVICE CEILING
20,000m

PAYLOAD CAPACITY
6,500kg

PERFORMANCE
Can achieve supersonic speed without afterburners

COST
₹15,000 crore to develop the first five jets

AMCA VARIANTS

- AMCA Mark-1: 10 made engines
- AMCA Mark-2: Will have indigenously developed engines

WEAPONS

- Air to Air: Close Combat Missile
- Air to Ground: Joint Direct Attack Munitions
- Beyond Visual Range Missile
- Precision Guided Munitions

INTERNAL WEAPONS BAY
Under the fuselage

WINGS
The shoulder-mounted, diamond-shaped trapezoidal wings will reduce drag at supersonic speeds; angled edges for stealth

FUSELAGE
Faceted design; radar-absorbent surface

COCKPIT
Glass cockpit with single bubble canopy

ADVANCED FIGHTER GENERATIONS

FOURTH-GENERATION
F-16
Can switch and swing between air-to-air and air-to-ground roles; first fighter to make regular use of fly-by-wire control system (a fully electronic flight control system)
Development: 1960s to late 1980s
Examples: MiG-29, Su-27, F/A-18, F-16, F-16 and Mirage 2000

4.5-GENERATION
Rafale
Evolved from fourth-gen aircraft, better avionics and limited stealth characteristics, and reduced visibility compared with fourth-gen aircraft
Development: late 1980s and into the 1990s
Examples: Eurofighter Typhoon, Dassault Rafale, MiG-35, Su-30SM, F/A-18E/F Super Hornet

FIFTH-GENERATION
F-22
Advanced stealth characteristics and advanced integrated avionics; improved situational awareness and decision superiority over adversaries
Development: 1980s-present
Examples: F-22, F-35, Su-57 (not inducted yet), Chengdu J-20 (claimed)
India's Tejas has a similar shape as the AMCA.
AMCA Systems Tejas and Future Combat Air Systems are the European programmes serving as role-gate fighters.
South Korea's advanced fighter KF-21 aims to conduct its first flight this year.

Context

- The **Cabinet Committee on Security (CCS)** cleared a Rs 15,000 crore project to design and develop the **Advanced Medium Combat Aircraft (AMCA)**, India's fifth-generation fighter multirole fighter jet.

Agencies Involved

- The **Aeronautical Development Agency (ADA)** under the Defence Research and Development Organisation (DRDO) will be the nodal agency for executing the programme and designing the aircraft.
- It will be manufactured by **state-owned Hindustan Aeronautics Limited (HAL)**.

Features


- Stealth features
- Low-probability-of-intercept radar
- Agile airframes with super cruise performance
- Advanced avionics features
- Highly integrated computer systems capable of networking with other elements within the battlespace
- Higher utilization time and smaller serviceability or



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	<p>maintenance periods</p> <p>Other fifth-generation fighters</p> <ul style="list-style-type: none"> • Only a few countries have built a fifth-generation stealth fighter aircraft. • The list of the aircraft currently in service includes the F-22 Raptor and F-35A Lightning II of the US, the Chinese J-20 Mighty Dragon, and the Russian Sukhoi Su-57.
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Kerala Regional News

<p>Prof. M.V. Pylee Award for T. Pradeep</p> 	<p>Context:</p> <ul style="list-style-type: none"> • Professor Thalappil Pradeep of IIT Madras was conferred the prestigious Prof. M.V. Pylee Award 2023 by Cochin University of Science and Technology (CUSAT) • It was given to him in recognition of his distinction as a leading academician in India. • The award includes a cash prize of ₹1 lakh, a citation, and a memento.
<p>Suspected case of Lyme disease reported in Ernakulam</p>	<p>Context:</p> <ul style="list-style-type: none"> • A suspected case of Lyme disease caused by the bite of a tick carrying borrelia bacteria has been reported from Koovapady in Ernakulam district. <p>About:</p> <ul style="list-style-type: none"> • Lyme disease is a bacterial infection spread by Borrelia burgdorferi bacteria from infected Ixodes ticks (blacklegged ticks in the US) • The most common symptom is a bull's-eye rash around the tick bite, but fatigue, fever, and headaches can also occur. <p>Key Points:</p> <p>Transmission:</p> <ul style="list-style-type: none"> • Tick bite (usually attached for 36-48 hours or more) <p>Cure:</p> <ul style="list-style-type: none"> • Early diagnosis is key to prevent the infection from reaching joints, the heart, or the nervous system.



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	<ul style="list-style-type: none"> • Lyme disease is treatable with antibiotics, especially if caught early. • Early treatment with antibiotics usually leads to a full recovery.
<p>Prime Minister launches five OSOP stalls in Kozhikode</p>	<p>Context:</p> <ul style="list-style-type: none"> • The Prime Minister inaugurated five stalls promoting the "One Station One Product" (OSOP) scheme at railway stations in Kozhikode district, Kerala. • Three stalls were set up at Kozhikode railway station, and one each at Koyilandy and Vadakara stations. <p>About:</p> <ul style="list-style-type: none"> • The "One Station One Product" initiative is a program by the Indian Railways to promote local artisans and products. • Goal: Aligned with the "Vocal for Local" vision, OSOP aims to create a market for indigenous goods and provide livelihood opportunities. • Functioning: Stations across India are designated to showcase and sell a single, signature product from their region. • Products: These can be handicrafts, handloom textiles, food products, or anything specific to the local area.
<p>National Good Samaritan Day</p>	<p>Context:</p> <ul style="list-style-type: none"> • National Good Samaritan Day is celebrated on March 13th each year. • It's a day to recognize people who help others in need, without expecting anything in return. • The day is named after the parable of the Good Samaritan in the Bible, which tells the story of a traveler who helps a wounded stranger. • The day was first recognized by the United States White House in 1996 in honour of the life of sports journalist and humanitarian Chad Powellin. <p>Key points:</p> <ul style="list-style-type: none"> • Promotes kindness and charity: It encourages people to be more helpful and compassionate towards others. • Honors selfless acts: Recognizes those who go out of their way to assist strangers. • Importance of community: Highlights the value of helping one another and building a stronger community.



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Tribal cultural festival begins at KIRTADS in Kozhikode



Context:

- Paddy conservationist Cheruvayal Raman inaugurated 'Nera Thinka', the tribal medicine, food, art and literature festival organised by the Kerala Institute for Research Training and Development Studies of Scheduled Castes and Scheduled Tribes (KIRTADS) in Kozhikode
- Former State Council of Educational Research and Training (SCERT) Director **K. Prasad** was the guest of honour on the occasion.

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