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Javelin anti-tank missiles

Recently, India and the US discussed co-producing Javelin missiles in India.

- **About-** It is a ***3rd generation*** man-portable fire ***anti-tank guided missile (ATGMs).***
- It is developed and produced jointly by U.S. defence majors, ***Raytheon and Lockheed Martin.***
- It employs a ***top-down attack mode***, striking tanks from above where the armour is the thinnest.
- It is a highly lethal ***medium-range missile*** has been in full-rate production since 1994.
- It is capable of defeating all known and projected armour, as well as soft and irregular targets.

- **Features**
  - **Weight-** 22.1 kg.
  - **Range-** 2,500 metres to 4,750 meters.
  - **Technology-** It uses ***"fire-and-forget" technology*** with automatic infrared guidance, allowing it to self-guide to the target without external commands or target designation.

Fire-and-forget missiles require no further guidance after launch, allowing them to hit their target without needing the launcher to maintain line-of-sight or provide ongoing direction.

- It is designed to defeat heavily armoured vehicles like main battle tanks, lighter military vehicles, fortifications, bunkers, and helicopters.
- It's reload and reacquire time is about one minute.
- **Significance for India -** The anti-tank missiles will enable the Indian Army to meet its requirements to boost the weapon system.

Anti-Tank Guided Missile (ATGM)

• An Anti-Tank Guided Missile (ATGM) is a precision weapon designed to destroy armoured vehicles such as tanks.
• It is primarily designed to hit and destroy heavily armoured military vehicles.
• These are "fire-and-forget" missiles.
• The missiles rely on an electro-optical imager (IIR) seeker, a laser, or a W-band radar seeker in the nose of the missile.

References

1. The Economic times | Javelin anti-tank missiles
2. Lockheedmartin|Javelin

Didymocarpus janakiae

Recently a new plant species, Didymocarpus janakiae discovered in Arunachal Pradesh.

- **Genus-** Didymocarpus.
  - The genus consists of 111 species out of which 27 species are present in India.
- The species has been named in honour of ***Dr. E. K. Janaki Ammal***, Indian botanist renowned for her contributions to botany, particularly in plant breeding, genetics, and cytology.
  - In 1931, she became the 1st Indian woman to be awarded a doctorate in botany in the US (University of Michigan).
- **Location-** It is confined to the sub-tropical forests of ***West Kameng district, Arunachal Pradesh***.
- **Habitat-** They thrive in undisturbed habitats such as ***moss-covered rocks***, highlighting the ecosystem's pristine quality.
- **Other nomenclature-** It is commonly known as ***stone flower*** which is part of the African violet family (Gesneriaceae).
- **Threat-** It is under threat of habitat degradation caused by rapid development activities like road construction.
- **Conservation status –** It is proposed for listing as Critically Endangered under IUCN guidelines.



Reference

Hubnetwork | Didymocarpus janakiae

World Craft City

Recently, Srinagar is recognized as the 4th Indian city to attain the status of a 'World Craft City'.

- **Agency-** World Craft Council (WCC).
- **Reason for selection-** Since the ***14th century*** the Srinagar has become known for its rich ***arts and crafts tradition and heritage.***
- **Types of crafts in Srinagar-** Handicrafts & handloom products, like Paper-machine, walnut wood carving, carpets, Sozni embroidery, Pashmina Kani shawls, and hand-knotted carpet
- The J&K administration had applied for the recognition of Srinagar as World Craft City in 2021 together with recognition as ***UNESCO Creative Cities Network.***

  Srinagar's recognition as a United Nations Educational, Scientific and Cultural Organization (UNESCO) Creative City for Crafts in 2021.

- These crafts, honed over centuries and passed through generations, have earned global recognition for their exceptional quality and craftsmanship.
- Handicrafts are vital for local income, economic growth, and social bonds,

driving the city's development.

- **Other World Craft Cities in India-** ***Jaipur, Malappuram and Mysore*** are the other Indian cities that have previously been recognised as World Craft Cities.

World Craft Council (WCC)
• It is a non-profit, non-governmental organization. • It is affiliated to UNESCO. • **Establishment-** 1964. • **Aim-** To promote the preservation, protection, and development of traditional crafts and foster economic development through crafts. • **Objective-** To promote - Fellowship among crafts persons worldwide, - Foster economic development through craft-related activities, - Organize exchange programs, workshops, conferences, seminars, and exhibitions, and - Offer encouragement and advice to artisans.

References

1. The Indian Express | World Craft City
2. World Crafts Council | About

Bio-bitumen

India plans to start large-scale production of bio-bitumen production from biomass or agricultural waste to reduce imports of the material used for asphalting of roads.

- Bio-bitumen is known as biologically sourced bitumen that is derived from ***renewable biological sources*** rather than from fossil fuels.
- It is made using non-petroleum-based renewable resources and can be made from vegetable oils, synthetic polymers, or both, making it a more sustainable model long term.

  Bitumen is produced through the distillation of crude oil and also occurs naturally.

- **Properties-** It typically retains the desirable characteristics of conventional bitumen, such as durability, waterproofing ability, and adhesion.

- **Advantages -** Bio-bitumen has a potential to reduce greenhouse gas emissions and dependency on fossil fuels, offering a more sustainable alternative in construction and infrastructure projects.
- It doesn’t contain any toxic chemicals, so it is safer for workers and the environment.
- **Applications-** It can be used in similar applications as traditional bitumen, including asphalt paving for roads and as a binding agent in roofing materials and waterproof coatings.

Reference

The Economic Times | Bio-bitumen

Gigantic jets

Gigantic jets were recently witnessed over the Himalayan Mountains by National Aeronautics and Space Administration (NASA).

- Gigantic jets are a ***rare and powerful type of lightning*** that can extend from the top of a cloud to the edge of space.
- They are relatively a recent discovery in the field of atmospheric phenomena, having been documented only in the 21st century.
- It is different from regular cloud-to-cloud and cloud-to-ground lightning.
- The bottoms of Gigantic Jets look similar to blue jets, while the tops look similar to red sprites.



- It occurs between some thunderstorms and the Earth's ionosphere high above them.

- It pack ***50 times*** the power of a regular lightning strike and can travel as high as 80 kilometres above the Earth’s surface.
- Unlike familiar cloud-to-cloud and cloud-to-ground lightning, gigantic jets bridge the gap between thunderstorms and the Earth's ionosphere, soaring high above the storm clouds.

Reference

Indian express | Gigantic jets

