CROSS & CLIMB ROHTAK

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PINAKA WEAPON SYSTEM

According to defence officials, two South American countries have shown interest in the Pinaka multi-barrel rocket launchers.

About Pinaka:

- Pinaka is a **Multi-Barrel Rocket Launcher (MBRL).**
- The Pinaka MBRL is **designed by** the **Armament Research and Development Establishment** (ARDE), a **laboratory of the DRDO.**
- It was **first used during the Kargil War,** where it successfully neutralised Pakistan Army positions on the mountaintops.
- It **delivers lethal and responsive fire** against a variety of area targets, such as exposed enemy troops, armoured and soft-skin vehicles, communication centres, air terminal complexes, and fuel and ammunition dumps.

Features:

- It consists of a **multi-tube launcher vehicle**, a **replenishment-cum-loader vehicle**, a **replenishment vehicle**, and a **command post vehicle.**
- The launcher system is supported on four hydraulically-actuated outriggers at the time of firing.
- It has a **range of 60 to 75 kilometres.**
- The system is **mounted on a Tatra truck for mobility**.

KEY FACTS ABOUT PANAMA CANAL

Scientists recently stumbled upon a lost forest in the Panama Canal, dating back around 22 million years.

About Panama Canal:

- It is an **artificial waterway** that connects the **Atlantic Ocean with the Pacific Ocean**.
- The canal **cuts across the Isthmus of Panama** and is a conduit for maritime trade.
- It was cut through one of the narrowest saddles of the **isthmus that joins North and South America.**
- It is one of the two most strategic artificial waterways in the world, the other being the Suez Canal.
- It is approximately **80 kilometres long.**
- It consists of a **series of locks that raise and lower the water level** to **facilitate the passage of ships** through the continental divide.

History:

- **France began work** on the canal in 1881, **but financial troubles** and diseases **made the initiative fail.**
- The **United States took over** the project on May 4, 1904, and **opened the canal on August 15, 1914**, and then **managed the waterway until 1999.**
- On December 31, **1999, Panama took over full operation, administration,** and maintenance of the Canal, in **compliance with the Torrijos-Carter Treaties** negotiated with the United States in 1977.

PAKKE PAGA HORNBILL FESTIVAL

The 9th edition of the Pakke Paga Hornbill Festival (PPHF), a state festival of Arunachal Pradesh, will take place at Seijosa in the Pakke Kessang district from January 18-20, 2024.

About Pakke Paga Hornbill Festival:

- The first-ever PPHF was held in 2015. The aim was to recognise the role played by the **Nyishi tribal group in conserving hornbills** in **Pakke Tiger Reserve** (PTR).
- Other objectives were to raise alternative sources of income for the region and to create awareness in the rest of India about the wonders of PTR and its surrounding areas.

- This year, the festival's theme is **Domutoh Domutoh, Paga hum Domutoh**. It translates to 'Let Our Hornbills Remain' in the Nyishi language.
- This year's festival aims to underscore the critical need for preserving these iconic birds.

Key points about Pakke Tiger Reserve:

- It is located in the East Kameng district of **Arunachal Pradesh.**
- It is surrounded by the Tenga Reserve Forest to the North, Doimara Reserve Forest on the West, and **Nameri National Park and Tiger Reserve** (Assam) on **the South**.
- The landscape has high species diversity and endemicity as it forms the transition zone between the **Indian and Malayan ecoregions.**
- It is situated North of the **river Brahmaputra** in the transition zone between the Assam plains and the hilly forests of Arunachal Pradesh.
- **Vegetation:** It consists of tropical evergreen and semi-evergreen forest.
- **Flora**: Polyalthia simiarum, Pterospermum acerifolium, Sterculia alata, Stereospermum chelonioides, Ailanthus grandis and Duabanga grandiflor. About eight species of **bamboo** occur in the area.
- **Fauna:** Tiger, Elephant, predators like Leopard and Clouded leopard etc.

WHAT ARE LIGHT-EMITTING DIODES?

Light-emitting diodes (LEDs) have succeeded the incandescent bulbs and fluorescent lamps of previous centuries as the world's light source of choice.

About the Light-Emitting Diodes:

- A diode is an **electronic component** which has two points of contact, or terminals, called its anode and cathode.
- A diode's primary purpose is **to allow current to flow** in only one direction.
- An LED is a **semiconductor device** which emits light when electric current flows through it.

- It can produce all three primary colours – **red, green, and blue** – different LEDs can be combined on a display board to produce a large variety of colours.

Advantages of LED:

- **Energy Efficiency:** It requires far less electricity to produce the same light as incandescent bulbs. LEDs use approximately 75-80% less energy than traditional incandescent bulbs.
- **Durability:** LED bulbs are highly durable and resistant to shocks, vibrations, and temperature fluctuations.
- **Instant Illumination:** It provides instant illumination without the warm-up period required by incandescent bulbs.
- **Heat Generation:** LED bulbs generate very little heat, making them safer to handle and more efficient in terms of energy utilisation.
- **Environmental Impact:** LEDs have a significantly lower environmental impact compared to incandescent. The energy efficiency and longer lifespan result in reduced greenhouse gas emissions and less waste.

What are the Applications of LEDs?

- LEDs have several applications in industry, consumer electronics, and household appliances: from smartphones to TV screens, from signboards to 'feeding' plants light in greenhouses, from barcode scanners to monitoring air quality.

DEFENCE TECHNOLOGY COUNCIL: TO DETERMINE THE COUNTRY'S DEFENCE TECHNOLOGY ROADMAP

Why in News?

- According to an expert committee, a top body - the Defence Technology Council, should determine the country's defence technology roadmap and decide on major projects and their execution.

- The 9-memberexpert committee is headed by the former principal scientific advisor **Prof K Vijay Raghavan**.

About the Defence Technology Council:

- **This top body,** called the Defence Technology Council by the Vijay Raghavan committee, is chaired by the Prime Minister, with the Defence Minister and the National Security Advisor as its Vice Presidents.
- **It is proposed to have an executive committee** chaired by the Chief of Defence Staff.
    - The Principal Scientific Advisor, along with the three service chiefs and their vice chiefs, will also be its members.
- Furthermore, it will include **representation from academia and industry**, with two members from each sector.

Secretariat of the Defence Technology Council:

- The panel has also suggested the creation of a separate department under the Defence Ministry - **the Department of Defence Science, Technology, and Innovation**.
- This department, **proposed to be headed by a technocrat**, will
    - Promote defence research and development in the academic and start-up ecosystem.
    - **Serve as the secretariat for the Defence Tech Council.**
    - Operate labs for testing and certification, a function also performed by DRDO.
- As the DTC secretariat, this department **will draw scientists from DRDO and academia**, building a repository of knowledge on production expertise and conducting background research for the DTC.
    - Hence, the department will aid DTC's decisions on technology production.

WHY KASHMIR AND LADAKH ARE WITHOUT SNOW THIS WINTER, ITS IMPLICATIONS

Why in news?

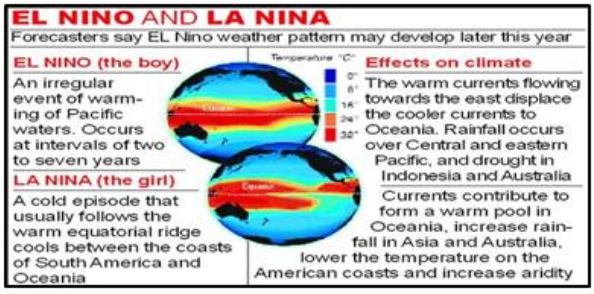
- One of Kashmir's main winter tourism attractions, Gulmarg, has been bereft of snow this season. This has led to a plunge in the flow of tourists and severely hit the business of ski resorts.

The Normal Climatic Conditions

- **Weather depends a lot on ocean temperatures** and where the ocean is warm, more clouds form and more rainfall in that part of the world.
- **In the Pacific Ocean**, near the equator, the Sun makes the water especially warm on the surface.
- **Normally**, a surface low-pressure system forms in northern Australia and Indonesia and a high-pressure system develops off the coast of Peru.
- As a result, the **trade winds blow strongly from east to west** over the Pacific Ocean, transporting warm surface waters westward.
- This leads to convective storms (**thunderstorms**) in Indonesia and coastal Australia.

What is El Nino and La Nina?

- **El Nino and La Nina** are two opposing climate trends that deviate from the normal conditions and normally run nine to twelve months, but can often extend.



- These events occur every two to seven years on average (El Nino is more frequent than La Nina), but not regularly and together are referred to as the **El Nino-Southern Oscillation** (ENSO) cycle by scientists.
- El Nino is typically known as the **warm phase** (a band of warmer water spreading from west to east in the equatorial Pacific Ocean) and La Nina is identified as the **cold phase** (a band of cooler water spreads east-west) of ENSO.
- Both El Nino and La Nina can have global effects on **weather, wildfires, ecosystems and economics.**

Impact of dry winter

- **Long-term implications**
  - the generation of less hydroelectricity,
  - an increase in the rate of glacier melting, and
  - an adverse impact on the drinking water supply, since scanty snowfall means very little recharge of groundwater.
- **Short-term implications**
  - A dry spell can increase forest fires, agricultural drought, and a drop in crop production.
  - It can lead to an early spring, which means early flowering, which can cause a reduction in yield.
  - The winter snow is a source of steady moisture to the soil that is vital for winter crops, particularly horticulture.
  - Yields of apples or saffron, important ingredients of the local economy, are badly affected in the absence of snowfall.

Kolam Tribes

The Central government will extend basic facilities to the endangered Kolam tribe under the Jan Jati Adivasi Nyay Maha Abhiyan, with a focus on health and education.

About Kolam Tribes:

- Kolam tribes, also known as Kolamboli, Kulme and Kolmi, **occupy a major portion of Madhya Pradesh.**
- The main concentration of this tribe is on the **plains and in the mountainous region**.
- These tribal groups are reckoned as **scheduled tribes** and apart from Madhya Pradesh they **reside in some parts of Maharashtra and Andhra Pradesh.**
- They are **listed as a Particularly Vulnerable Tribal Group** (PVTG) **in** the states of **Maharashtra and Andhra Pradesh.**

History:

- **Around the twelfth century**, the Kolam **served as priests for the Gond,** representing some of their important gods.
- It is generally accepted that the Kolam **descended from the original population in the area.**
- Since they now **live near the Gond**, they have **adopted much of the Gond lifestyle.**

- The Kolam people **are divided into different clans,** like Chal Deve, Pach Deve, Saha Deve, and Sat Deve.
- **Marriages between the same clans are not permissible.**
- The Kolams **use the names of their clans as their surnames**.
- Their **society is patrilineal**, meaning that the line of descent is traced through the males.
- The Kolam are **mainly farmers and forest workers** In times past, they used shifting cultivation on the hill slopes. Today, they primarily live as settled farmers and use plough cultivation.
- They **speak a Dravidian language called Kolami**, and nearly all of the adults also speak Marathi, Telugu, or Gondi.
- They **also speak other languages** like Marathi, Telugu or Gondi.
- **For writing**, this Kolam tribal community **uses the Devanagari script.**

AFRICAN DREAM HERB

A dying traditional game, given a fresh lease of life at the ongoing Karbi Youth Festival (KYF) in central Assam's Karbi Anglong district, has fuelled a drive for conserving a creeper known as the African dream herb.

About the African dream herb:

- A **perennial climbing** vine that is used by African traditional healers to induce vivid dreams that enable them to communicate efficiently with their ancestors.
- **Common names:** Giant sea bean, African dream herb, snuff box and Entada rheedii
- **Distribution and habitat:** It is indigenous to **Africa, Asia, Australia and Madagascar**. It grows in tropical lowlands, along the coastline and river banks, in woodland, thickets and riverine rain forests.
- **Uses**
    - A paste made from the leaves, bark and roots is used to clean **wounds, treat burns and heal jaundice in children.**
    - Tea made from the whole plant is used to **improve blood circulation** to the brain and heal the after-effects of a stroke.
    - The bark is used to treat diarrhoea, dysentery and parasitic infections.
- This creeper yields a dark brown and spherical seed, almost the size of a human patella or kneecap, used to play '**Hambi Kepathu'**. Associated with the origin of the Karbi community.

What is Hambi Kepathu?

- It is also known as **Simrit** in some parts of Karbi Anglong, and is played on three rectangular courts by two teams comprising three members each.
- Each member of a team has to place a 'hambi', or the glazed creeper seed, vertically on the midpoint of the boundary line of his court for a player of the rival team to hit with his 'hambi'.
- Hambi Kepathu, whose name is derived from the first syllables of the names of a Karbi sister-brother duo, is a male-only game like other traditional Karbi games such as 'Pholong' (spinning top), 'Thengtom Langvek' (torch swimming), and 'Kengdongdang' (bamboo stilt race).