

April - 12

TNPSC BITS

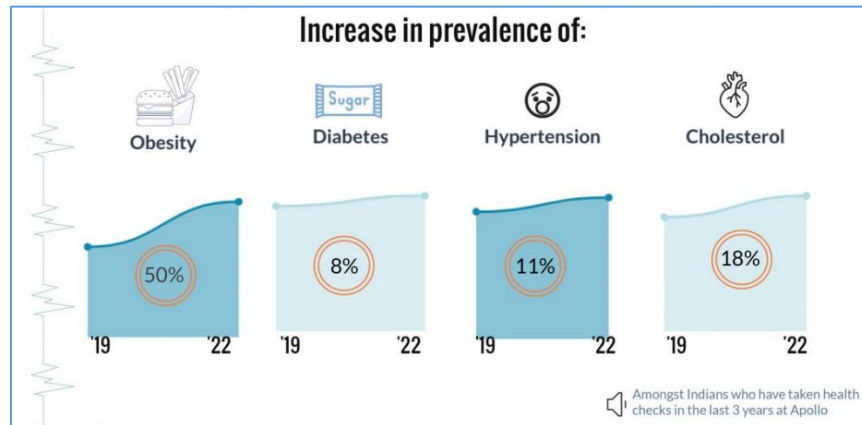
- ❖ The Indian Coast Guard inaugurates Aquatic Centre at Mandapam near Rameshwaram, Tamil Nadu to review operational preparedness and infrastructure development in the region.
- ❖ Indian Navy, Coast Guard, Marine Police, fisheries, customs and other security agencies were engaged in the coastal security exercise - Sagar Kavach.
- ❖ The sitars and tanpuras of Miraj, a small town in Maharashtra's Sangli district have been awarded the coveted Geographical Indication (GI) tags.
- ❖ C-DOT and IIT - Kharagpur have signed an agreement for 'Developing Prototypes for 10-Gigabit-capable symmetric Passive Optical Network (i.e., XGS-PON) Optical Line Terminal (OLT) and Optical Network Unit (ONU).
- ❖ NASA's Mars robot helicopter Ingenuity has been grounded for good after flying dozens of times over three years.
 - It is the first vehicle to achieve powered, controlled flight on another world.
- ❖ The renowned author Sam Pitroda has written a new book titled 'The Idea of Democracy'.
 - It explores the current state of democracy and its potential challenges in countries like India and the United States.
- ❖ GAIL (India) Limited has been honored with the prestigious 15th CIDC Vishwakarma Award in the 'Achievement Award for Best Construction Projects' category.
 - This is for its remarkable accomplishment in the Barauni – Guwahati Natural Gas Pipeline project (BGPL).

NATIONAL


Health of the Nation Report

- ❖ Apollo Hospitals unveiled the 4th edition of its flagship annual report, "Health of Nation".
- ❖ This report dubbed India as the "cancer capital of the world".
- ❖ People in India are getting cancer at relatively lower ages compared to the Western countries.
- ❖ The average age of incidence has also gotten significantly younger in India.

- ❖ The most common cancers in order of occurrence in India are breast cancer, cervix cancer and ovarian cancer among women.
- ❖ For men, the most common cases are instances of lung cancer, mouth cancer and prostate cancer.
- ❖ Obesity rates surged from 9 percent in 2016 to 20 percent in 2023.
- ❖ Hypertension cases have increased from 9 percent to 13 percent during the same period.
- ❖ One in three Indians is pre-diabetic, two in three are pre-hypertensive, and one in 10 suffers from depression.



Kala-azar elimination

WHAT IS KALA-AZAR		Transmission
<ul style="list-style-type: none"> ▪ A slow progressing indigenous disease ▪ Caused by protozoan parasite of genus <i>Leishmania</i> ▪ In India, <i>Leishmania donovani</i> is the only parasite causing the disease ▪ The parasite primarily infects reticuloendothelial system 	<p>Signs & Symptoms</p> <ul style="list-style-type: none"> ➔ Recurrent fever ➔ Loss of appetite ➔ Weakness ➔ Spleen enlargement ➔ Anaemia 	<ul style="list-style-type: none"> ▪ Sandfly of genus <i>Phlebotomus argentipes</i> only known vector of kala-azar in India
<ul style="list-style-type: none"> ▪ Parasite undergoes morphological change to become flagellate 	<ul style="list-style-type: none"> ▪ Healthy human hosts get infection when an infective sandfly vector bites them 	 <ul style="list-style-type: none"> ▪ Indian kala-azar has a unique epidemiological feature of being anthroponotic ▪ Female sandflies pick up parasite while feeding on infected human host ▪ Development and multiplication in the gut of sandflies and move to mouthparts

- ❖ India has achieved its target to eliminate visceral leishmaniasis, commonly known as kala-azar.
- ❖ The National Centre for Vector Borne Diseases Control (NCVBDC) released the data.
- ❖ The latest data from NCVBDC indicates that India reported only 520 cases of kala-azar in 2023 across India.

- ❖ India had initially aimed to eliminate kala-azar by 2010, but the target was extended until 2023 due to persistent challenges.
- ❖ WHO defines elimination as no block in the country reporting more than one case per 10,000 people.
- ❖ Kala-azar, a vector-borne disease caused by protozoan parasites, is transmitted through sandfly bites.
- ❖ It has posed a significant health challenge for decades, particularly in states like Bihar, Jharkhand, West Bengal, and Uttar Pradesh.

INTERNATIONAL

Western Equine Encephalitis Virus


EASTERN EQUINE ENCEPHALITIS

Eastern equine encephalitis (EEE) is a *viral disease affecting the central nervous system*.
Mosquitoes and other biting insects **carry the pathogen** from infected birds and transmit it to horses (or humans) when they bite. A horse affected with EEE is not contagious and poses no risk to other horses, humans or birds.

CLINICAL SIGNS are highly variable and include:

- Moderate to high fever (102.5-104.5°F)
- Depression
- Lack of appetite
- Facial paralysis, tongue weakness, head tilt, droopy lip, difficulty swallowing due to cranial nerve deficits

Contact your veterinarian for more information, or visit aaep.org to learn more about vaccination guidelines.



- ❖ Argentina reported a human infection of the Western Equine Encephalitis Virus (WEEV) recently.
- ❖ Argentina and Uruguay have seen 21 people and 374 animals getting sick from WEEV.
- ❖ WEEV) is a rare but serious viral disease that primarily affects equines (horse family) and humans.
- ❖ Mosquitoes act as vectors of the virus infecting humans and equines.
- ❖ The virus belongs to the genus Alphavirus of the Togaviridae family, which also includes
 - Eastern Equine Encephalitis (EEEV) and

- Enezuelan Equine Encephalitis (VEE) viruses.

SCIENCE AND TECHNOLOGY

Igla-S Man Portable Air Defence Systems

- ❖ The Indian Army has received the first batch of 24 Russia-made Igla-S Man Portable Air Defence Systems (MANPADS).
- ❖ The system is being procured to shore up Indian Army's Very Short-Range Air Defence (VSHORAD) capabilities.
- ❖ The Igla-S system consists of a single launcher and a missile.
- ❖ While the first batch has come from Russia, the rest of these systems will be made in India through Transfer of Technology (ToT) from Russia.



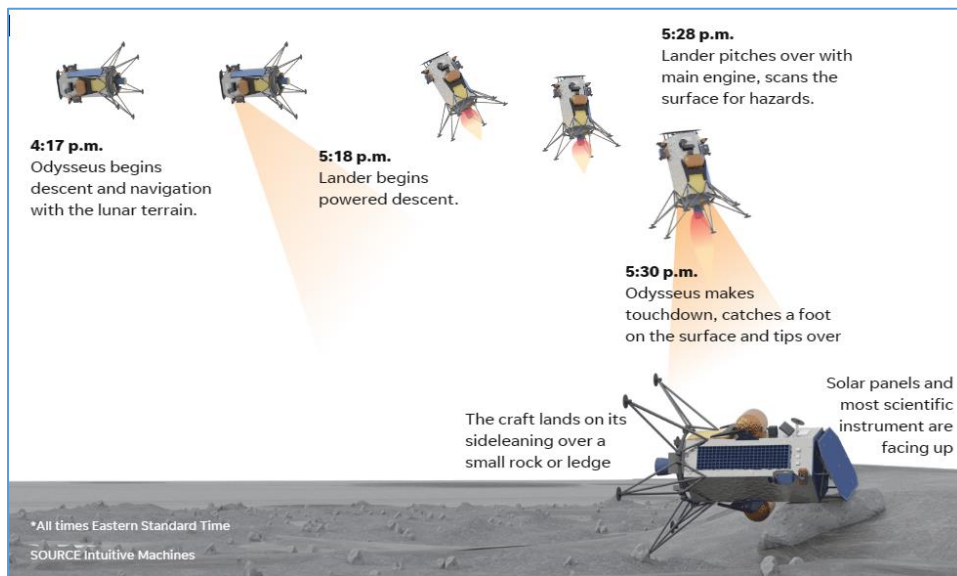
Peregrine Mission 1



- ❖ Private lunar lander Peregrine Mission-1 made its first attempt to land on the Moon in over 50 years.

- ❖ However, the landing attempt was seemingly failed after the spacecraft developed a “critical” fuel leak just hours after launch.
- ❖ The anomaly is preventing the lander from "achieving a stable sun-pointing orientation".
- ❖ Astrobotic, the American company is controlling the robotic lander of a garden shed's size.
- ❖ The lander carries with it the DNA of the well-known former US presidents which include that of John F Kennedy and the Star Trek icons.

Odysseus by USA



- ❖ The US achieved its first touchdown on lunar surface in over 50 years after they landed near moon's south pole.
- ❖ The robot lander, Odysseus landed as planned at a crater called Malapert A near the moon's south pole.
- ❖ To date, only four other countries - the former Soviet Union, China, India, and Japan - have successfully landed spacecraft on the moon.
- ❖ However, the United States remains the only country to have sent humans to the lunar surface.

Zhuque-2 rocket

- ❖ Zhuque-2, a rocket developed by Chinese private space technology startup LandSpace Technology, launched three satellites into orbit.
- ❖ The launch vehicle was powered by a mixture of methane and liquid oxygen.

- ❖ The use of methane in commercial launches could help slash costs and make it easier to reuse rockets.
- ❖ Currently, the rocket can carry a payload of up to 1.5 metric tons into a 500-kilometre-orbit.
- ❖ The future Zhuque-3 rocket would use stainless steel propellant tanks and clusters of methane-liquid oxygen propellant engines.

ZQ-2 FLIGHT 2

LAUNCH PROVIDER
LandSpace Technology Corporation

MISSION TYPE
Technology Demonstration (Test Flight)

MISSION
ZQ-2 Flight #2
Second test flight of LandSpace's Zhuque-2 rocket. In December 2022, the first flight; Zhuque-2 Y1 failed to enter orbit due to the early shutdown of the second stage's vernier engine, then the mission did not achieve its intended objective. If FLIGHT 2 successful, this will be the first successful use of methane/liquid oxygen powered rocket engines used for transportation to Earth orbit and beyond. The 2nd test flight of Zhuque-2 likely manifests a bunch of payloads from Beijing Smart satellite program & other firms.

LAUNCH SPACEPORT
Site 96, Jiuquan Satellite Launch Center, People's Republic of China (PRC)

DESTINATION
Sun-Synchronous Orbit (SSO)



LAUNCH WINDOW
JULY 12
0600Z UTC
14:00 BJT

2023

JULY 12
02:00 EDT
09:00 MSK
(extended launch window)

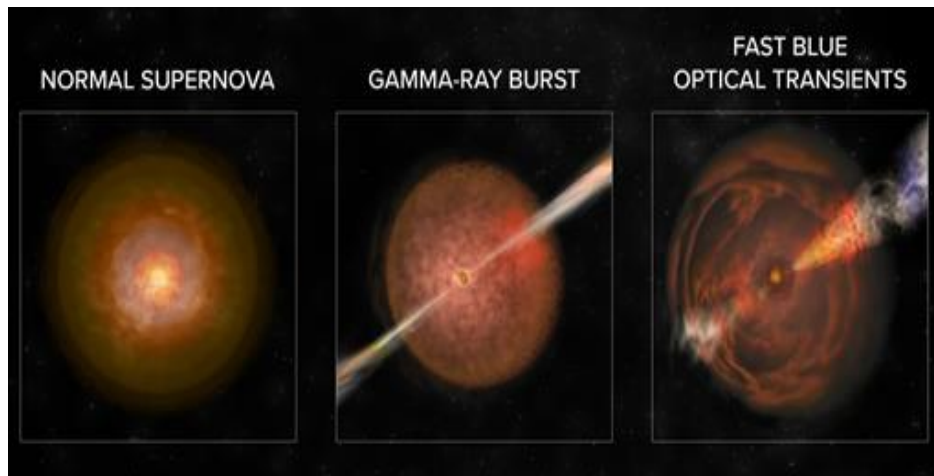
LAUNCH VEHICLE
ZhuQue-2
ZQ-2 Y2
Height 49.5 m
Width 3.35 m
LV mass 230 tons

ENGINE BLOCKS

STAGE/ENGINES	PROPELLANTS	MAX THRUST
2) 1 x TQ-12A <small>(Normal Operation: 700 kN (VACUUM))</small>	LOX/LCH ₄	790 kN
1) 4 x TianQue-12 <small>(SEA LEVEL)</small>	LOX/LCH ₄	2,636 kN

RECOVERY
LAUNCH VEHICLE IS EXPENDABLE

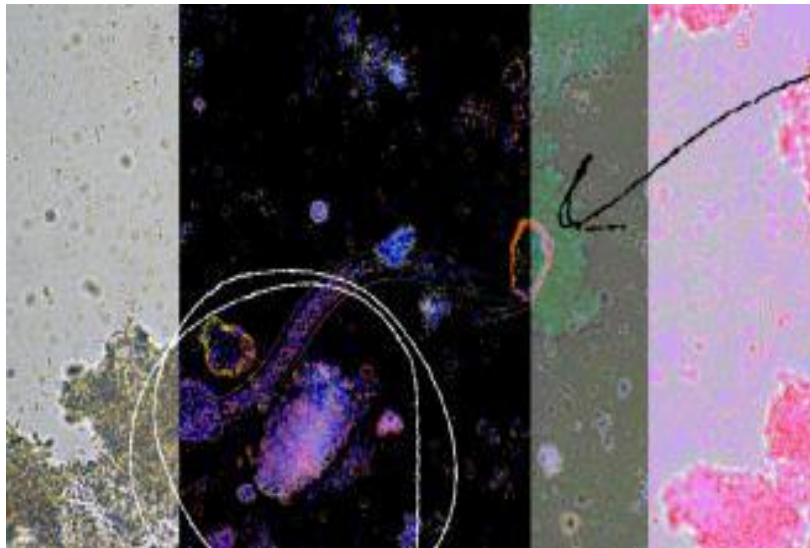
600th Gamma-Ray Burst



- ❖ India's AstroSat space telescope has achieved a significant milestone by detecting more than 600 Gamma-Ray Burst (GRB).
- ❖ Each GRB marking the death of a massive star or merging of neutron stars.

- ❖ GRBs are the most energetic explosions in the universe, emitting more energy in seconds than the sun will emit in its entire lifetime.
- ❖ GRBs last from a fraction of a second to several minutes, and are accompanied by the birth of a black hole.

New Virus-like Life-forms

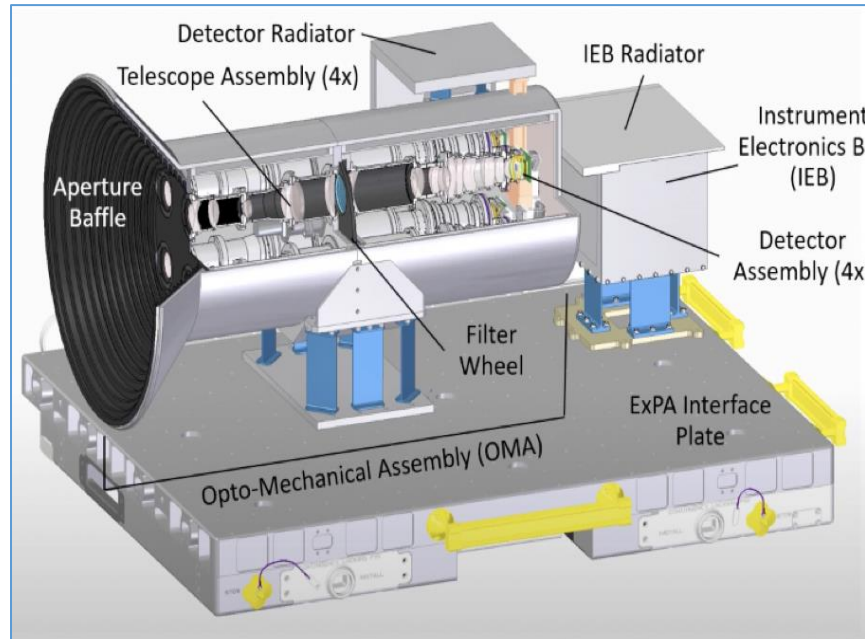


- ❖ Biological entities called obelisks have been hiding — in large numbers — inside the human mouth and gut.
- ❖ These microscopic entities are circular bits of genetic material that contain one or two genes and self-organise into a rod-like shape.
- ❖ The Scientists found this new form of life lying between viruses and viroids on the scale of simplicity. They called them 'obelisks'.
- ❖ For nearly seven decades since the discovery of viruses in 1898, they were the only organisms at the boundary between the living and the non-living.
- ❖ In 1971, Theodor Diener, a plant pathologist discovered viroids.

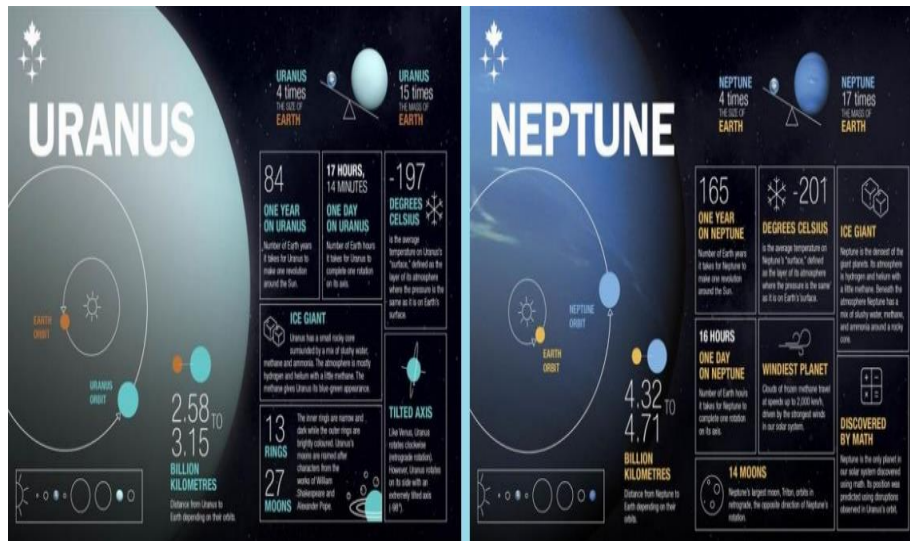
Atmospheric Waves Experiment

- ❖ NASA launched the Atmospheric Waves Experiment (AWE) to study one of the important drivers of Space weather – the Earth's weather.
- ❖ It was mounted on the exterior of the Earth-orbiting International Space Station (ISS).
- ❖ From the vantage point, it looks down at the Earth and record the colourful light bands, commonly known as airglow.

- ❖ AWE is a first-of-its-kind NASA experimental attempt aimed at studying the interactions between terrestrial and Space weather.



Three new moons around Uranus and Neptune

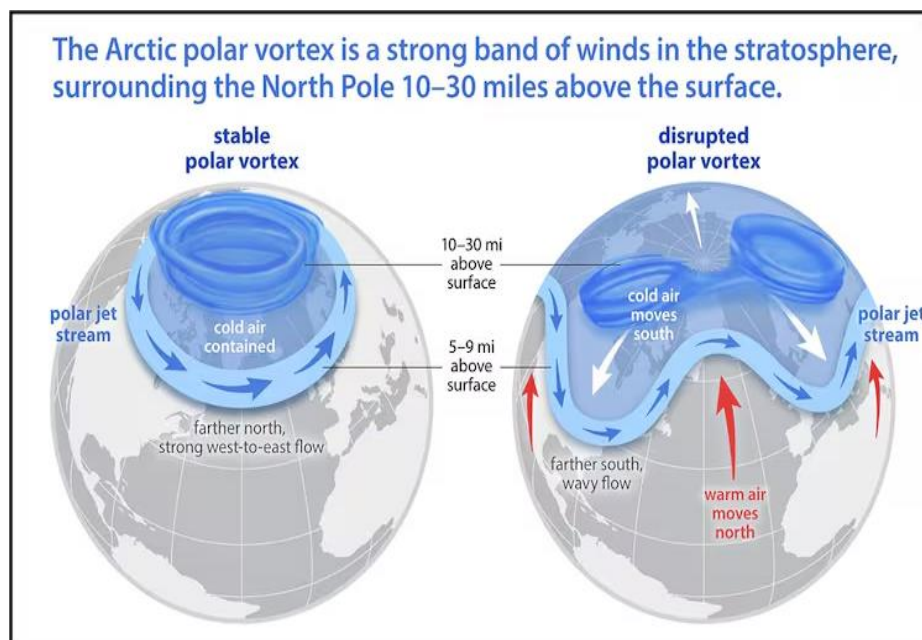


- ❖ Astronomers have discovered three new moons around Uranus and Neptune, the most distant planets in our solar system.
- ❖ The find includes one moon spotted orbiting Uranus- the first discovery of its kind in more than 20 years, and two detected in Neptune’s orbit.
- ❖ The newfound Uranian moon is the 28th to be observed orbiting the ice giant and is also likely the smallest, measuring 5 miles (8 kilometers) across.

- ❖ The moon, called S/2023 U1, takes 680 Earth days to complete one orbit around the planet.
- ❖ The bright S/2002 N5 moon is 14 miles (23 kilometers) in diameter and takes nearly nine years to complete an orbit of Neptune.
- ❖ While faint S/2021 N1 is about 8.7 miles (14 kilometers) across and has a lengthy orbit of about 27 years.

ENVIRONMENT

Reversal of Arctic Polar Vortex

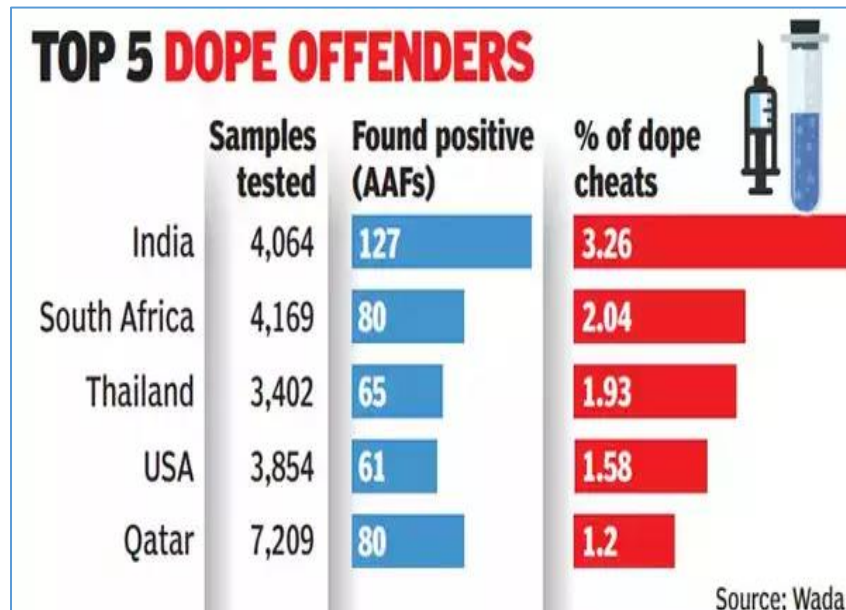


- ❖ Polar vortex, an air current that circles the polar region, mysteriously changed direction for 21 days.
- ❖ It is one of the biggest events in the last four decades.
- ❖ The polar vortex is a prominent feature of Earth's atmosphere that describes the high-altitude winds that blow around the pole every winter, several kilometres above the surface in a region called the stratosphere.
- ❖ The stratospheric polar vortex emerges during the winter season in the hemisphere where Earth's pole faces away from the sun.
- ❖ As this happens, the polar stratosphere enters a phase of darkness and cools in comparison to the tropical stratosphere.
- ❖ This temperature contrast leads to robust west-to-east winds in the stratosphere.

- ❖ These wintertime stratospheric winds are commonly referred to as the Arctic polar vortex.

REPORTS AND INDICES

WADA anti-doping report



- ❖ India has emerged as the country with the highest percentage of doping offenders, as per the World Anti-Doping Agency (WADA).
- ❖ India's number of doping violations have been higher than some of the major sporting nations like Russia (85), USA (84), Italy (73) and France (72).
- ❖ The total collected samples of Indians stood at 4,064 (urine, blood and athlete biological passports combined).
- ❖ 127 Indian athletes were caught for using banned substances, which amounts to 3.26% of the sample size.
- ❖ Following India, South Africa was ranked second and followed by Bangkok's testing laboratory in third place.
- ❖ The United States and Qatar secured the fourth and fifth positions, respectively.

STATES

Shortest route to Ladakh

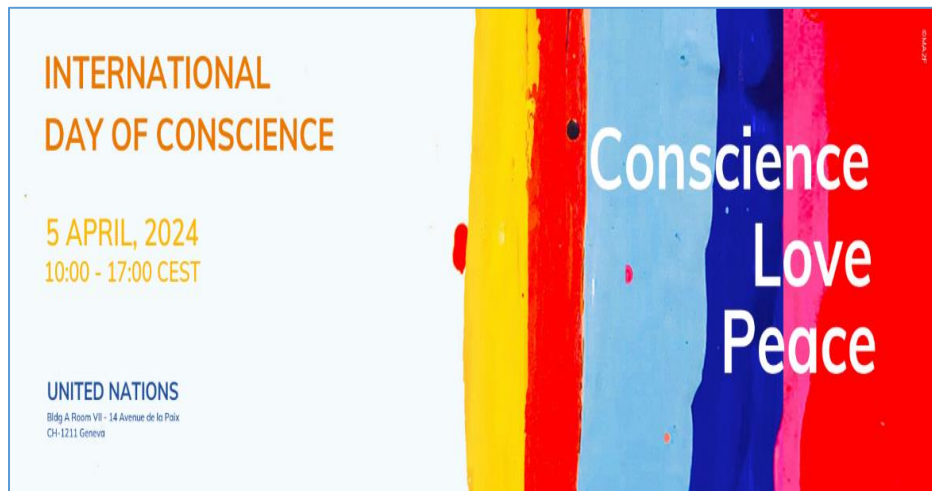
- ❖ The Border Roads Organisation (BRO) is establishing connectivity on the 298-km Nimmu-Padam-Darcha Road in Ladakh.

- ❖ The road will be the first all-weather road connecting Ladakh to the rest of the country.
- ❖ This will reduce dependence on airways during the colder months, and will facilitate movement of Army personnel.



IMPORTANT DAYS

International Day of Conscience 2024 - April 05



- ❖ On April 5, 2020, the first International Day of Conscience was celebrated.
- ❖ Conscience is the ability of a person to distinguish between what's right and what's wrong.



- ❖ It aims to lead a conscientious life; one must respect human rights and dignity as well as protect other living beings.
- ❖ This year theme is “Promoting the Culture of Peace with Love and Conscience.”

International Day of Sport for Development 2024 - April 06

- ❖ It aims to recognise the importance of sports and physical activity in our personal lives and communities around the world.
- ❖ Sports are an important component of society as it keeps us active, competitive, and healthy.
- ❖ This year theme is “Sport for the Promotion of Peaceful and Inclusive Societies”.



International Day of Reflection on the 1994 Genocide against the Tutsi in Rwanda 2024 - April 07

- ❖ This year marked the 30th commemoration of the 1994 Genocide against the Tutsi.
- ❖ It was established by the United Nations General Assembly in 2003 to remember the genocide that took place in Rwanda in 1994.
- ❖ The Rwandan genocide, also known as the genocide against the Tutsi, was a genocidal mass slaughter of Tutsi in Rwanda by members of the Hutu majority government.

- ❖ More than 800,000 Rwandans were killed during the 100-day period from April 7 to mid-July 1994.



MISCELLANEOUS

Ikshvaku-era coins at Phanigiri



- ❖ Telangana's Department of Heritage has recently unearthed a coin hoard at Phanigiri, a renowned Buddhist heritage site.
- ❖ The coins numbering 3,730 bore an elephant symbol on the obverse and an Ujjain symbol on the reverse.
- ❖ Studies concluded that the coins belong to the Ikshvaku period.



- ❖ Studies suggest that the village had a vibrant life from 1000 BC to 18th century AD.

