

Factly Weekly

Compilation

2024

**For UPSC CSE Prelims
Exam**

**2nd Week
June 2024**

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UPSC Syllabus: Science and technology

GNSS-based Electronic Toll Collection (ETC) System

Why in News?

The Indian Highways Management Company Limited (IHMCL), promoted by the National Highways Authority of India (NHAI), has issued a global call for Expressions of Interest (EOI) to develop and implement a GNSS-based Electronic Toll Collection (ETC) system on India's National Highways.

About GNSS-based Electronic Toll Collection (ETC) System

1. The GNSS-based ETC system utilizes Global Navigation Satellite System technology to facilitate electronic toll collection without physical toll barriers.
2. By using satellites or satellite constellations, the system accurately tracks vehicle movements and calculates tolls based on the distance traveled on tolled highways.

Key Features of the System

1. Vehicles must be equipped with GNSS-enabled On Board Units (OBUs) to be part of this toll collection system.
2. The NHAI plans to integrate this system within the existing FASTag ecosystem, starting with a hybrid model that supports both RFID-based and GNSS-based ETC simultaneously.

Significance of the GNSS-based ETC System

1. The system is designed to ensure smooth vehicle movement along National Highways by eliminating physical toll booths.
2. It offers a barrier-free tolling experience, significantly reducing congestion and wait times.
3. It implements distance-based tolling, where users are charged solely for the segments of the highway they use.
4. It aims to enhance toll collection efficiency by minimizing revenue leakages and preventing toll evasion.

About Global Navigation Satellite System (GNSS)

1. About: The Global Navigation Satellite System (GNSS) is a constellation of satellites orbiting Earth, continuously transmitting radio signals with precise time and orbital information.

2. Components of GNSS: It consists of satellite and a receiver.

i) Satellites: Orbit the Earth, transmitting time-stamped signals.

ii) Ground Control Stations: Monitor and manage the satellite constellation.

iii) Receivers: Devices that capture satellite signals to determine precise location.

3. Applications of GNSS

i) Navigation: Used in aviation, maritime, and road transport.

ii) Mapping and Surveying: Provides precise geospatial data for mapping and land surveys.

iii) Agriculture: Enables precision farming techniques.

iv) **Disaster Management:** Assists in emergency response and disaster relief operations.

v) **Telecommunications:** Synchronizes networks and systems.

Donanemab Antibody to fight Alzheimer

Why in the News?

Donanemab which is currently in trials has shown significant potential in slowing cognitive decline in individuals with early Alzheimer's.

About Donanemab

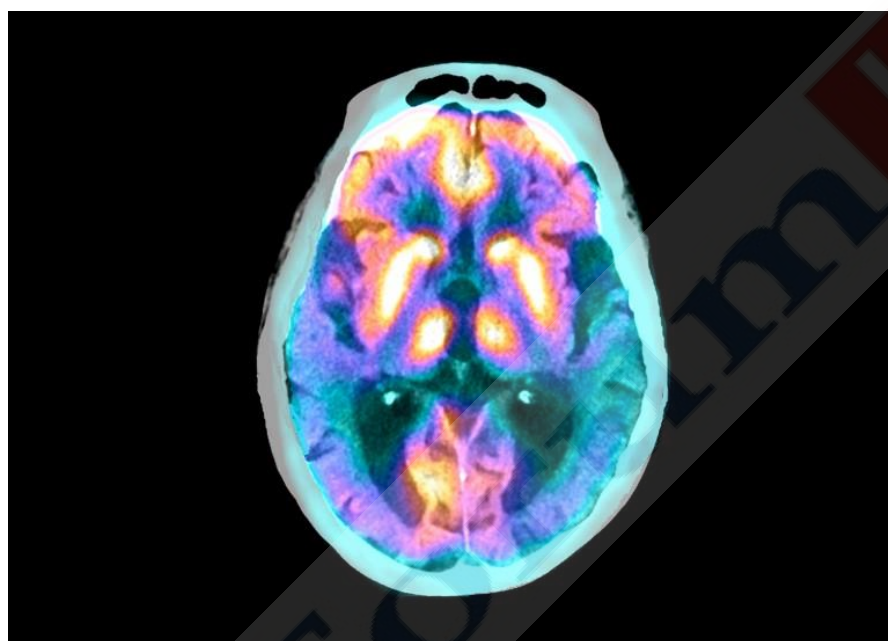


Figure 1. Source: IE

1. Donanemab is a monoclonal antibody that attacks amyloid, which is a sticky protein that accumulates in the brains of people with Alzheimer's disease.

2. It proved more effective in individuals with low to moderate tau levels at the trial's onset, compared to those with high tau levels.

Note: Tau (t-tau) protein reflect the intensity of the neuronal damage in neurodegeneration, including Alzheimer's disease (AD)

Breakthrough in Slowing Cognitive Decline

i) Phase III Trial Results: Donanemab slowed cognitive decline by 35% compared to a placebo in a phase III trial.

ii) Significance: This represents a significant milestone in Alzheimer's research, being the second drug within a year to show effectiveness in slowing cognitive decline in early-stage patients.

iii) Limitations: Donanemab and similar drugs do not stop or reverse Alzheimer's disease but can significantly improve the quality of life by slowing cognitive decline for affected individuals and their families.

iv) Urgent Need: With an estimated 14 million dementia cases, including Alzheimer's, expected in India by 2050, effective treatments are urgently needed.

About Alzheimer's Disease

1. Nature of the Disease: Alzheimer's disease is a progressive and irreversible neurological disorder.

2. Protein Toxicity: Beta-amyloid is a protein vital for brain function. It becomes toxic in Alzheimer's patients, forming clumps that disrupt brain cell connections, leading to cognitive issues such as memory loss.

3. Neuronal Damage: These protein deposits interfere with neuron communication, causing deterioration and death of brain cells.

4. Early Symptoms: Initial signs include forgetfulness, difficulty finding words, problem-solving challenges, confusion, and disorientation.

5. Causes: The exact cause is not fully understood but involves genetic, environmental, and lifestyle factors.

6. Risk Factors: Family history, genetic mutations, head injuries, cardiovascular disease, and certain lifestyle factors increase the risk.

Iskander-M missile system

Why in the News?

Recently, Russia claimed that it used the nuclear-capable Iskander-M missile system to target the Ukrainian military airbase in Mirgorod.

About Iskander-M

1. The Iskander (Western reporting name: SS-26 Stone) is a road-mobile short-range ballistic missile system developed by Russia.

2. It entered Russian service in 2006. It is designed for tactical strikes on small, high-value land targets.

3. Features

i) The missile is 7.3 meters long, 0.92 meters in diameter, and has a launch weight of 3,750 kilograms.

ii) It has a range of 400-500 km and uses both inertial and optical guidance systems.

iii) It can carry conventional and nuclear warheads up to 700 kg.

iv) Missiles can travel at up to seven times the speed of sound (Mach 7) and can reach an altitude of more than 30 miles.

v) It employs a maneuverable re-entry vehicle (MaRV) and decoys to defeat theater missile defense systems.

vi) It is equipped with various systems for in-flight correction and self-targeting, allowing the missile to overcome missile defense systems.

vii) It has various variants such as Iskander-E and Iskander-K.

UPSC Syllabus: Geography

Ghataprabha River

Why in the News?

Recently, nine people were rescued by locals after a tractor overturned and fell into the Ghataprabha River.

About Ghataprabha River

1. The Ghataprabha River is a significant **tributary of the Krishna River**, which flows through the state of Karnataka.
2. The river **originates in the Western Ghats** at an elevation of 884 meters.
3. It flows eastward for a distance of 283 kilometers before **merging with the Krishna River**.
4. The river descends by 53 meters at Gokak Falls in Belgaum (Belagavi) District, Karnataka.
5. The river basin spans 8,829 square kilometers, covering regions in both Karnataka and Maharashtra.
6. **Key tributaries** of the Ghataprabha include the Hiranyakeshi River and the Markandeya River.

About Krishna River

1. The Krishna River is a prominent river in south-central India.
2. The Krishna River rises in western Maharashtra, specifically in the Western Ghats near the town of Mahabaleshwar.
3. It flows through the states of Maharashtra, Karnataka, Telangana, and Andhra Pradesh, eventually emptying into the Bay of Bengal at Hamasaladeevi in Andhra Pradesh.
4. The Krishna River Basin covers an area of about 258,948 square kilometers, accounting for nearly 8 percent of India's total geographical area.
5. The Tungabhadra River, formed by the confluence of the Tunga and Bhadra Rivers originating in the Western Ghats. These include the Koyna River, Bhima River, Kundali River, Malaprabha River, Ghataprabha River, Yerla River, Warana River, Dindi River, Musi River, and Dudhganga River.
6. In terms of water inflows and river basin size, the Krishna River ranks as the fourth largest river in India, following the Ganga, Godavari, and Brahmaputra rivers.

Notified Disasters

What are Notified Disasters?

Why in news?

The ongoing extreme heat in many parts of the country has reignited discussions on including heatwaves as one of the notified disasters under the Disaster Management (DM) Act, 2005.

About Notified Disaster

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1. The Disaster Management Act, 2005, defines a disaster as a “catastrophe, mishap, calamity or grave occurrence” arising from natural or man-made causes.
2. Disasters result in substantial loss of life, destruction of property, or damage to the environment.

Categories of Notified Disasters

1. The Act includes 12 categories of notified disasters which are Cyclone, Drought, Earthquake, Fire, Flood, Tsunami, Hailstorm, Landslide, Avalanche, Cloudburst, Pest attack, Frost and cold waves.
2. Notified disasters are eligible for relief assistance under the State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF).
3. The SDRF is primarily used for immediate relief to victims of notified disasters.
4. The NDRF supplements the SDRF in cases of severe disasters where funds are insufficient.

Exclusion of Heatwaves

1. Heatwaves are not currently included as a notified disaster under the Act.
2. Despite being a significant concern in certain regions of India, the Finance Commission has not expanded the list to include heatwaves.
3. If classified as a disaster, States can use up to 10% of their SDRF allocation for local disasters, including heatwaves, which some states have done.

Role of NDMA

1. The National Disaster Management Authority (NDMA) plays a crucial role in disaster management in India.
2. NDMA lays down policies, plans, and guidelines for disaster management.
3. It aims to promote a national resolve to mitigate the damage and destruction caused by natural and man-made disasters through sustained and collective efforts.

UPSC Syllabus: Disaster management

UPSC Syllabus: Indian economy

Household Consumption Expenditure Survey (HCES) Report

Why in News?

Recently, the Household Consumption Expenditure Survey (HCES), released its report. It showed that consumption inequality increased in rural areas of 11 states despite a national trend.

About Key Findings

- i) The **Gini coefficient** increased in rural areas of 11 states between 2011-12 and 2022-23.
- ii) **States Affected:** The states where the Gini coefficient rose include Bihar, Chhattisgarh, Jharkhand, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Himachal Pradesh, and Rajasthan.

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iii) Nagaland, Jharkhand, Maharashtra, Rajasthan, Meghalaya, Chhattisgarh has witnessed increase in Gini coefficient.

iv) The Gini coefficient for consumption expenditure also rose in urban areas of three states which are Meghalaya, Himachal Pradesh, Manipur.

v) Nationally, the Gini coefficient for rural areas declined from 0.283 in 2011-12 to 0.266 in 2022-23. For urban areas, it decreased from 0.363 to 0.314 during the same period.

Note: A lower Gini coefficient indicates reduced spending inequality.

About Gini coefficient

i) Gini coefficient is an indicator of income or wealth inequality and is derived from the Lorenz curve.

ii) It is measured by dividing area between perfect equality curve and actual income distribution curve by area under perfect equality curve.

iii) The coefficient ranges from 0 (0%) to 1 (100%), with 0 representing perfect equality (where every resident in a country has the same income) and 1 representing perfect inequality (one resident earned all income and the rest earned nothing).

UPSC Syllabus: International relations

India Opportunity at IPEF Clean Economy Investor Forum

Why in the News?

Recently, an event was organised by Department of Commerce and Invest India to showcase various investment opportunities in India

About India Opportunity at IPEF Clean Economy Investor Forum

1. Organised by: The Department of Commerce and Invest India organised a meeting to showcase various investment opportunities in India. It was held at Marina Bay Sands, Singapore on June 7, 2024.

2. Participants: Over 60 global investors and financial institutions, and more than 15 Indian firms.

3. Highlights of the event: At the event, it has been highlighted that :

i) India's growth rate is nearly double that of other emerging market economies.

ii) Indian startups are returning home for capital access and tax benefits.

iii) AI and data centers are key to future growth.

iv) reforms aimed at streamlining regulations, enhancing transparency, and improving Ease of Doing Business.

vi) focus of government on sustainable infrastructure, climate technology, and renewable energy projects to meet Net Zero targets.

About Indo-Pacific Economic Framework for Prosperity (IPEF)

1. About: The Indo-Pacific Economic Framework for Prosperity (IPEF) is an economic initiative launched by U.S.A President Joe Biden in 2022.

2. Objective: It provides a platform for countries in the region to collaborate on advancing resilient, sustainable, and inclusive economic growth, and aims to contribute to cooperation, stability and prosperity in the region.

3. Members: It has 14 partners – Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, USA and Vietnam.

4. Nodal agency: Department of Commerce for the IPEF engagements

5. Pillars of cooperation: The IPEF comprises four pillars of cooperation namely: Trade, Supply Chain, Clean Economy and Fair Economy.

Read more: [IPEF agreement IPEF's Clean Economy Investor Forum](#)

International Organization for Migration (IOM)

Why in the News?

Recently, International Organization for Migration reported that at least 49 migrants died and 140 others were missing after their boat capsized off the coast of Yemen.

About the International Organization for Migration

Aspects	Description
About	The International Organization for Migration (IOM) is part of the United Nations System. It was founded in 1951.
Headquarters	Its headquarters is in Geneva, Switzerland.
Guiding Principles	IOM is guided by the principles in the Charter of the United Nations, with a focus on upholding human rights for all, respect for the rights, dignity, and well-being of migrants is paramount.
Member States	175 member states and 8 observer states.
Objective	IOM's work focuses on three main objectives: i) Saving lives and protecting migrants. ii) Finding solutions for displaced people. iii) Creating safe and regular migration pathways.
Mandate	To provide services and advice to governments and migrants, including internally displaced persons, refugees, and migrant workers.
Key Areas of Work	1. Migration and Development: It works to maximize the benefits of migration for home and host countries, as well as migrants. 2. Migration Health Services: It provides health services and support to migrants and displaced populations. 3. Emergency Operations: It offers emergency relief and post-crisis recovery programs. It includes transportation assistance, temporary shelter, and rebuilding infrastructure.

	4. Counter-Trafficking: It actively combats human trafficking through prevention, protection, and prosecution. It also provides assistance to victims of trafficking
Key Publications	It publishes reports such as World Migration Report and Migration Health Annual Report.

UPSC Syllabus: Reports

Child Nutrition Report 2024

Why in the News?

According to the recently released Child Nutrition Report 2024, severe food poverty affects one in four children under age 5 around the world.

About Child Nutrition Report 2024

- 1. Published by:** UNICEF.
- 2. Objective:** It examines the status, trends, inequities, and drivers of child food poverty in early childhood.
- It addresses the impact of global and local food and nutrition crises.
- It concentrates on low- and middle-income countries where most children experiencing food poverty reside.
- It explores the effects of child food poverty on undernutrition and poor development.
- UNICEF defines Child Food Poverty as children's inability to access and consume a nutritious and diverse diet in early childhood (first five years of life).

Highlights of the 2024 Report

- 1. Global Impact:** One in four children under age 5 worldwide (27% or 181 million) faces severe food poverty and is at risk of life-threatening malnutrition.
- 2. Regional Distribution:** Over two-thirds of the 181 million young children living in severe food poverty are in South Asia and sub-Saharan Africa.
- 3. Key Countries:** 20 countries account for 65% of children living in severe food poverty: – Afghanistan, Bangladesh, China, Côte d'Ivoire, Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, India, Indonesia, Myanmar, Niger, Nigeria, Pakistan, Philippines, Somalia, South Africa, Uganda, United Republic of Tanzania, Yemen.
- 4. Household Impact:** Children in both poor and non-poor households face severe food poverty.
- 5. Economic Distribution:** About half (97 million) of the children in severe food poverty live in middle- and upper-income households.

Global Gender Gap Report 2024

Why in the News?

The World Economic Forum (WEF) has released the Global Gender Gap Report 2024, highlighting persistent gender inequality across various sectors worldwide.

About Global Gender Gap Report 2024

1. The Global Gender Gap Report 2024 is published by the **World Economic Forum**.
2. It assesses gender parity across **four key dimensions**: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment.
3. It is the longest-standing index tracking the progress of numerous countries' efforts towards closing these gaps over time since its inception in 2006.

Key findings of the report

1. The global gender gap score for all 146 countries included in this edition stands at 68.5%.
2. Among the 101 countries continuously covered since 2006, the gap has also improved by +0.1 points to reach 68.6%.
3. Despite progress, no country has achieved full gender parity. However, 97% of economies included in this edition have closed more than 60% of their gender gap (compared to 85% in 2006).

5. Top-Ranking Countries:

- i) Iceland maintained its position as the most gender-equal country for the 14th consecutive year, with a gender gap score of 91.2%.
- ii) Norway, Finland, and Sweden also rank high, consistently placing in the top five.

About India's Performance

1. India is ranked 129 in this year's index. The ranking reflects a slight regression compared to the previous edition.
2. The decline is primarily due to **small decreases in 'Educational Attainment' and 'Political Empowerment.'** Despite the overall decline, there was a **slight improvement in 'Economic Participation and Opportunity.'**
3. **India ranks the third-lowest** among South Asian economies. India fares worse than Bangladesh, Nepal, Sri Lanka, and Bhutan.

UPSC Syllabus: Schemes and programmes

Launch of the E-Flow Monitoring System

Why in the News?

Shri C.R. Paatil launched the Environmental flows (E-flows) Monitoring System developed by the NMCG.

About the Launch of the E-Flow Monitoring System

1. The E-flow Monitoring System is developed by the National Mission for Clean Ganga.
2. It is an integral component of the PRAYAG portal which is a real-time monitoring centre for the planning and monitoring of projects, river water quality, and other crucial parameters.
3. This portal encompasses online dashboards such as the Ganga Tarang Portal, Project Management Tool Dashboard, and the Ganga Districts Performance Monitoring System.
4. This platform facilitates real-time analysis of the water quality of the Ganga, Yamuna, and their tributaries, and monitors the Namami Gange programme activities at the central level.
5. The performance of Sewage Treatment Plants (STPs) is monitored through the Online Continuous Effluent Monitoring System (OCEMS), ensuring that all STPs operate at their rated capacity. River water quality is also monitored at various locations.
6. The launch of the E-flow Monitoring System marks a significant step towards ensuring the continuous and sustainable flow of the Ganga River.
7. The Government of India has mandated minimum E-flow for various stretches of the Ganga River to be maintained year-round.
8. The National Mission for Clean Ganga laid down the flow specifications essential for preserving the river's ecological balance, safeguarding aquatic life, and ensuring sustainability amidst diverse water usage demands.

About National Mission for Clean Ganga (NMCG)

1. The NMCG was established in 2011. It is registered as a society under the Societies Registration Act, 1860.
2. The NMCG has a two-tier management structure comprising a Governing Council and an Executive Committee.
3. The Executive Committee meets every month to coordinate, supervise, and deliberate on funding for Namami Ganga projects.
4. The NMCG operates under the National Ganga Council. The NMCG is supported by State Programme Management Groups (SPMGs) in Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, and West Bengal.
6. **Objective:** The primary objective of the NMCG is to accomplish the mandate of the National Ganga Council.
7. **Goals:** One of the key goals is to prevent, control, and abate environmental pollution in the Ganga River. The NMCG adopts a river basin approach for the rejuvenation of the Ganga River.
8. **Aim:** The NMCG aims to maintain minimum ecological flows in the river to ensure water quality and environmentally sustainable development.

9. Vision

- i) Continuous Flow: The vision includes ensuring Aviral Dhara, which means a continuous flow of water in the Ganga.
- ii) Unpolluted Flow: The vision also encompasses Nirmal Dhara, which means an unpolluted flow of water.
- iii) Geologic and Ecological Integrity: The NMCG strives to preserve the geologic and ecological integrity of the river.

CSIR-ASPIRE Scheme

Why in the News?

300 women scientists to receive research grants for three years under the CSIR-ASPIRE scheme.

About CSIR-ASPIRE Scheme

1. About: The ASPIRE scheme is an initiative by the Council of Scientific and Industrial Research (CSIR) to provide research grants to women scientists and technologists.

2. Aim: The scheme aims to support women in conducting research in various fields of science and technology. The scheme also aims to promote and encourage women to participate in scientific research and technology development in India.

3. Criteria: The CSIR ASPIRE Women Research Grant is open to women scientists and technologists who are Indian citizens and have a PhD degree in any area of science or technology.

4. The scheme is also open to women:

i) who have completed their PhD and have at least three years of research experience.

ii) scientists and technologists who have taken a career break due to family responsibilities and want to resume their research careers.

Benefits of the ASPIRE Scheme

1. Financial Support: The ASPIRE scheme provides research grants to women scientists and technologists for conducting research in various fields of science and technology.

2. International Exposure: The scheme also offers funding for international travel, enabling women scientists to attend conferences and workshops abroad, facilitating global exposure and collaboration.

3. Participation in Research: The CSIR ASPIRE Women Research Grant aims to promote and encourage women to participate in scientific research and technology development in India.

4. Support for Underrepresented Areas: The scheme focuses on supporting women in conducting research in areas where they are traditionally underrepresented, helping to bridge the gender gap in these fields.

About One Week One Lab initiative

1. The 'One Week One Lab' initiative is a countrywide campaign of the Council of Scientific and Industrial Research (CSIR) in India.

2. The campaign aims to showcase the technological breakthroughs and scientific innovations of CSIR labs across the country.

3. There are 37 CSIR labs dedicated to different areas of work, which will have an opportunity to present their achievements and inform stakeholders about their work.

UPSC Syllabus: Art and culture

Satnamis Community

Why in the News?

Recently, a huge mob from the Satnami community in Chhattisgarh's Baloda Bazar district torched dozens of vehicles, pelted stones at police personnel, and set fire to the Superintendent of Police office building. The protesters, dissatisfied with the police's handling of a case involving the desecration of a sacred 'Jaitkhamb', demanded a CBI probe.

About Satnamis Community

1. The term "Satnamis" means those who believe in a God whose name is 'truth'.
2. The Satnamis are a predominant group within the 11% Scheduled Caste (SC) population in Chhattisgarh, believed to be an offshoot of the Ravidassia community.
3. The community was founded on April 21, 1657, by Bir Bhan in Narnaul, Haryana. Udhodas who was a disciple of Saint Ravidas was the first priest or spiritual guru of the community.
4. The Satnamis inhabit the plains of central Chhattisgarh, mainly in the old districts of Bilaspur, Durg, Rajnandgaon, and Raipur.

5. Principles and Influence: The Satnamis emphasize three main principles:

- i) Adorning the attire of a Satnami devotee
- ii) Earning money through proper means
- iii) Not tolerating any injustice or oppression in any form

6. The community is believed to exert political influence by voting collectively, and representatives occupy most of the 10 assembly segments allotted for SCs.

7. The community reveres Mini Mata, the first female Member of Parliament from Chhattisgarh, who entered the Lok Sabha by winning the 1955 by-election. Political parties often invoke her legacy to appeal to the Satnamis for votes.

About Satnami Revolt of 1672

1. The Satnami revolt occurred during the reign of Mughal Emperor Aurangzeb, in today's Mahendragarh district of Haryana.
2. Cause: The revolt began when a Mughal soldier killed a Satnami, leading about 5,000 Satnamis to take up arms.
3. The Satnamis routed the Mughal troops, drove away the administrators, and set up their own administration.
4. The revolt gained support from Hindus in Agra and Ajmer, who were discontent with Aurangzeb's strict Islamic policies, including the revival of the Jizya tax, banning of music and art, and destruction of Hindu temples.
5. Aurangzeb took personal command and sent troops with artillery to suppress the revolt, resulting in an attempt to annihilate the Satnamis. The remnants fled and remained disorganized and leaderless for a long time.

About New Movement

1. The most significant Satnami group was founded in 1820 in the Chhattisgarh region by Saint Ghasidas, a farm servant and member of the lower (Chamar) caste.
2. Saint Ghasidas established the Satnam Panth ("Sect of the True Name"), providing a religious and social identity for many Satnamis.
3. He preached a code of ethical and dietary self-restraint and social equality, and authored Nirvan Gyan to propagate his teachings.
4. Throughout history, Satnamis have navigated their position within a larger Hindu hierarchy, influenced by connections with the Kabir Panth at different points.

124th Death Anniversary of Birsa Munda

Why in News?

Recently tribute was paid to revolutionary tribal leader Birsa Munda marking the 124th anniversary of his death.

About Birsa Munda



Source: IE

- i) Birsa Munda was born on November 15, 1875.
- ii) He belonged to the Munda tribe in the Chotanagpur region (present-day Jharkhand). His community, originally nomadic hunters, had turned to farming.
- iii) He completed his primary education under the guidance of teacher Jaipal Nag.

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iv) Birsa converted to Christianity to join the German Mission school but left after a few years.

Impact of British Rule

i) Land Ownership Changes: The traditional land ownership system, known as “khuntkatti,” was disrupted by the Permanent Settlement Act (1793), introducing the zamindari system.

ii) Exploitation: The new system created land-owning zamindars (dikus) and tenant farmers (ryots), leading to the displacement and exploitation of tribal communities.

iii) Forced Labour: The “begar” system imposed forced labor on the tribal people.

iv) Moneylenders and Courts: Tribals were forced to depend on moneylenders and had their traditional clan councils replaced with British courts.

v) Famines: Famines in 1896-97 and 1899-1900 caused mass starvation among the tribal population.

Significant contribution of Birsa Munda

1. He was influenced by the Sardari agitation against British rule, Birsa became actively involved in the anti-missionary and anti-colonial movement.

2. Birsa founded the **Birsait faith**, which advocated against superstition and encouraged the worship of one God. He was revered as ‘Bhagwan’ (God) and ‘Dharti ka Abba’ (Father of the Earth).

3. Birsa Munda launched the **Ulgulan movement**, a rebellion against British rule using guerrilla warfare. The movement aimed to establish the Birsa Raj and resist colonial laws and rent payments.

4. The Ulgulan movement led to significant reforms, including the **repeal of the begar system** and the enactment of the Tenancy Act (1903) and the Chotanagpur Tenancy Act (1908), which protected tribal land rights.

5. Birsa was arrested on March 3, 1900, and died in Ranchi Jail on June 9, 1900, at the age of 25.

UPSC Syllabus: Polity and nation

Facial Authentication Technology for EPS Pensioners

Why in News?

Recently, Facial Authentication Technology has been introduced for EPS Pensioners

About Facial Authentication Technology for EPS Pensioners

1. The Employees' Provident Fund Organisation (EPFO) serves over 78 lakh pensioners who are required to submit an annual life certificate to continue receiving their pension.

2. Implementation of Digital Life Certificate (DLC): In 2015, EPFO introduced the Digital Life Certificate allowing pensioners to submit their certificates via biometric authentication, which initially required visiting a facility equipped with the necessary technology.

3. In July 2022, the Ministry of Electronics and Information Technology (MeitY) and the Unique Identification Authority of India (UIDAI) developed Face Authentication Technology.

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EPFO adopted this and this enabled pensioners to submit their life certificates from home using any Android smartphone.

4. Pensioners can verify their identity through a facial scan using their smartphone camera, which compares the scan against UIDAI's Aadhaar database. This method eliminates the need for physical visits to banks or post offices.

5. During the 2022-23 fiscal year, 2.1 lakh pensioners used FAT for their DLCs. This number increased to 6.6 lakh in 2023-24, marking a 200% growth in usage. FAT-based DLCs accounted for about 10% of all DLCs received last year, with around 60 lakh DLCs submitted in total.

6. Application Requirements: Pensioners need to install two apps: "Aadhaar Face RD" and "Jeevan Pramaan". Authentication is performed via Aadhaar-linked mobile numbers, with detailed guidelines provided within the apps to facilitate a successful scan.

7. Promotional and Support Initiatives: Detailed instructions were disseminated to all field offices to popularize the new method. The EPFO also conducts regular sessions at the 'Nidhi Apke Nikat' programme across all districts to educate pensioners about the technology.

About Facial Recognition technology

1. About: Facial recognition technology identifies or verifies a person using an image, video, or any audiovisual element of their face. It is a method of biometric identification that uses facial and head measurements to authenticate identity.

2. How it Works: It captures unique biometric data of each person's face and facial expressions. It uses the collected data to identify, verify, and authenticate individuals.

Benefits of Facial Recognition

- i) It offers fast and smooth remote identity verification.
- ii) It provides a unique, smooth, and fast user experience, reducing the need for in-person visits or video conferences.
- iii) Each face has unique and inimitable characteristics which enhances security through biometric comparison.
- iv) It is recognized as a standard for remote identity verification for high-risk operations, such as opening bank accounts and signing contracts.

Powers of Lok Sabha Speaker

Why in News?

As the 18th Lok Sabha prepares to convene, the TDP and JD(U) are reportedly vying for the position of Speaker.

About Speaker's Constitutional Mandate

1. Under the Article 93 of the Constitution of India, the Constitution mandates the election of the Speaker and Deputy Speaker "as soon as may be" after the House convenes.

2. Election Process: The Speaker and Deputy Speaker are elected by a simple majority of the House members. There are no specific qualifications required to become the Speaker.

3. Under Article 94 of the Constitution of India, the Speaker is chosen from among the members of the House and vacates the office upon ceasing to be a member of the House.

4. Speaker's Salary: The salaries of the Speaker are drawn from the Consolidated Fund of India.

Role of the Speaker in Parliamentary Democracy

The Speaker of the Lok Sabha holds the highest authority in the lower house of the Parliament of India, playing several crucial roles:

1. Presiding over Proceedings: The Speaker is responsible for chairing the sessions of the Lok Sabha and ensuring that debates and discussions are conducted in an orderly and respectful manner. The Speaker has the authority to rule on points of order and to enforce the rules of the parliament.

2. Acting as a Spokesperson: The Speaker often represents the Lok Sabha and speaks on its behalf in public or at international events.

3. Maintaining Impartiality: The Speaker is expected to be neutral and unbiased in discharging duties, ensuring that all members of the Lok Sabha are treated fairly and equally.

4. Ensuring Transparency and Accountability: The Speaker is responsible for making sure that the proceedings of the Lok Sabha are open and transparent, and that the public has access to information about the work of the Lok Sabha.

5. Involvement in the Legislative Process: The Speaker has several duties related to the passage of legislation. These include assigning bills to committees, deciding the order in which bills are considered, and certifying the final text of bills before they are presented to the President for assent.

6. Representation: The Speaker represents the Lok Sabha in its relations with other parliamentary bodies and institutions.

Powers of the Lok Sabha Speaker

The Speaker of the Lok Sabha performs several key functions as outlined in the Indian Constitution:

1. Presiding over Sittings (Article 95): The Speaker presides over the sittings of the Lok Sabha and is responsible for maintaining order and decorum in the house.

2. Participation in Proceedings (Article 96): The Speaker has the right to take part in the proceedings of the house and to speak in any sitting of the house or any committee of which he or she is a member. However, the Speaker does not have the right to vote in the first instance.

3. Certification of Bills (Article 97): The Speaker is responsible for the certification of money bills and financial bills, and has the power to direct that any other bill be treated as a money bill or a financial bill.

4. Casting Vote (Article 100): In the event of a tie in the voting in the house, the Speaker has the casting vote.

5. Committee Appointments: The Speaker appoints committees and chairpersons of committees, and refers matters to committees for consideration.

Competition Commission of India (CCI)

Why in the News?

Recently, The Competition Commission of India (CCI) has approved acquisition of Global Infrastructure Management, LLC by BlackRock Funding, Inc.

About Competition Commission of India (CCI)

Aspects	Description
About the CCI	The Competition Commission of India (CCI) is a statutory body of the Government of India responsible for enforcing the Competition Act, 2002. It was established in 2003.
Composition	A Chairperson and 6 Members appointed by the Central Government.
Headquarters	New Delhi.
Preceding agency	Monopolies and Restrictive Trade Practices Commission.
Mandate	It was established to prevent activities that have an adverse effect on competition, to promote and sustain competition in markets, to protect the interests of consumers, and to ensure freedom of trade in the markets of India.

Powers of Competition Commission of India (CCI)

- 1. Inquiry and Investigation:** CCI has the power to inquire into any alleged contraventions of the anti-competitive agreements and abuse of dominant position. It can also investigate suo moto, or on receipt of a complaint from any person, consumer or their association, or trade association.
- 2. Penalties and Orders:** After an inquiry, CCI can pass orders and impose penalties on companies found in violation of the Competition Act. It can direct parties to modify or terminate agreements and even impose monetary penalties based on the nature of the violation.
- 3. Direction to Modify Practices:** CCI has the authority to direct enterprises to discontinue anti-competitive practices and not to re-enter such agreements.
- 4. Division of Enterprises:** In extreme cases, CCI can order the division of a dominant enterprise to ensure that it does not abuse its position or form monopolies.
- 5. Temporary Injunctions:** CCI can issue interim orders, temporarily restraining parties from continuing with anti-competitive practices during an investigation.
- 6. Appeal:** Decisions or orders passed by CCI can be appealed to the National Company Law Appellate Tribunal (NCLAT), and further appeal lies with the Supreme Court of India.

Functions of CCI

- 1. Advocacy:** CCI engages in competition advocacy, creating awareness and imparting training on competition issues.
- 2. Research and Monitoring:** It conducts studies and research, and monitors market practices and the operation of the competition laws in India.

3. Consultation: It consults with governmental and non-governmental entities on policies that may affect competition in the Indian market.

4. Regulation of Combinations: CCI regulates combinations (acquisition, acquiring of control, and Mergers and Acquisitions) through a process of notification to ensure that these combinations do not have an adverse effect on competition in India.

5. Partnerships: CCI collaborates with other regulatory authorities, enhancing the effective enforcement of the Competition Act.

6. Training and Capacity Building: CCI organizes training programs for its staff and other stakeholders to build capacity in dealing with competition issues.

National Highway Infra Trust (NHIT)

Why in the News?

Recently, the new corporate identity with the launch of a logo was unveiled at NHAI Headquarters in New Delhi.

About National Highway Infra Trust (NHIT)

1. NHIT is an infrastructure investment trust established to support the Government of India's National Monetization Pipeline (NMP).
2. NHIT was registered as a trust with SEBI in October 2020.
3. NHAI recently unveiled a new corporate identity for NHIT, including a new logo representing 'Agility' and 'Progress'.
4. The new identity aligns with NHIT's core values of Accountability, Agility, Continuous Learning, Excellence, Integrity, and Collaboration.
5. This launch marks a significant milestone in NHIT's evolution and aims to enhance its brand visibility among stakeholders.
6. The new corporate identity and strategic initiatives position NHIT as a leading player in the InvIT space.
7. NHIT plays a critical role in channelizing financial capital for the further development of the National Highway network across India.

About New Logo

The new logo represents 'Agility' and 'Progress'. It aims to enhance NHIT's brand visibility among stakeholders and align its image with its core values: Accountability, Agility, Continuous Learning, Excellence, Integrity, and Collaboration.

About National Highway Authority of India (NHAI)

1. It is India's premier highway infrastructure creator, responsible for developing, maintaining, and managing National Highways.
2. It operates under the administrative control of the Ministry of Road Transport and Highways.
3. It was constituted under the National Highways Authority of India Act, 1998. It became operational in February 1995.

4. The authority consists of a full-time Chairman and up to five full-time Members. There are four part-time Members appointed by the Central Government, including Secretary (Road Transport & Highways), Secretary (Expenditure), Secretary (Planning) and Director General (Road Development) & Special Secretary

5. NHAI has several specialized wings at its headquarters, including Technical Wing, Finance Wing, Administrative Wing and Vigilance Wing.

UPSC Syllabus: Polity and nation

National Commission for Indian System of Medicine (NCISM)

Why in the News?

Recently, The National Commission for Indian Medical Systems organized a two-day National Conference, 'PRANA' Protecting Rights and Novelty in ASUS (Mind to Market for Indian System of Medicines [ISM] Professionals).

About the conference

1. A two-day National Conference, 'PRANA' (Protecting Rights and Novelty in ASUS), was organized in collaboration with the All India Council for Technical Education (AICTE) and the Ministry of Education's Innovation Cell.
2. The seminar showcased numerous innovations with the potential for patents, commercialization, or technology transfer, suitable for startups.
3. The conference explored various aspects of supporting innovators in the Indian System of Medicine (ISM).

About National Commission for Indian System of Medicine (NCISM)

1. NCISM is a statutory body constituted under the NCISM Act, 2020, created by notification by the Central Government.
2. The Indian System of Medicine regulated under NCISM includes: Ashtang Ayurveda, Unani, Siddha and Sowa-Rigpa system of medicine.
3. **Composition of the Commission:** It is composed of Chairperson, Fifteen ex-officio members and 23 part-time members.
4. **Qualification of Chairperson:** A person of outstanding ability, proven administrative capacity, and integrity, possessing a postgraduate degree in any discipline of the Indian System of Medicine from a recognized University.

4. Functions of NCISM:

- i) It lay down policies to maintain high quality and standards in education of the Indian System of Medicine. It develop necessary regulations for educational standards.
- ii) It lay down policies for regulating medical institutions, medical research, and medical professionals. It develop necessary regulations for these areas.
- iii) It assess healthcare requirements, including human resources and infrastructure. It develops a roadmap to meet these requirements.

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- iv) It frames guidelines and policies for the proper functioning of NCISM, Autonomous Boards, and State Medical Councils of the Indian System of Medicine. It ensures coordination among Autonomous Boards.
- v) It ensures State Medical Councils comply with guidelines and regulations for effective functioning.
- vi) It promotes observance of professional ethics and ethical conduct among medical practitioners.
- vii) It also exercises appellate jurisdiction over decisions made by Autonomous Boards.
- viii) It frames guidelines for determining fees and other charges for 50% of seats in private medical institutions and deemed universities governed by the Act.

National Institute of Indian Medical Heritage (NIIMH)

Why in the News?

Recently, The World Health Organization (WHO) has designated the National Institute of Indian Medical Heritage (NIIMH), Hyderabad, as a WHO Collaborating Centre (CC) for “Fundamental and Literary Research in Traditional Medicine” (CC IND-177).

About NIIMH as Collaborating Centre for Traditional Medicine Research

1. The World Health Organization (WHO) has designated the National Institute of Indian Medical Heritage (NIIMH), Hyderabad as a WHO Collaborating Centre (CC) for “Fundamental and Literary Research in Traditional Medicine” (CC IND-177).
2. Duration: This recognition is granted for four years, starting from June 3, 2024.
3. India hosts approximately 58 WHO Collaborating Centres across various disciplines of biomedicine and allied sciences.
4. CCRAS-NIIMH, Hyderabad, is the third WHO Collaborating Centre in the domain of Traditional Medicine in India, alongside the Institute for Teaching & Research in Ayurveda, Jamnagar, and the Morarji Desai National Institute of Yoga (MDNIY), New Delhi.
5. As the first WHO Collaborating Centre for “Fundamental and Literary Research in Traditional Medicine,” NIIMH will assist WHO in standardizing terminologies for Ayurveda, Unani, Siddha, and Sowa-Rigpa, and updating the Traditional Medicine Module-II for the Eleventh edition of the International Classification of Diseases (ICD-11).
6. The WHO Collaborating Centre will support Member States in developing research methodologies for Traditional Medicine.

About National Institute of Indian Medical Heritage (NIIMH)



Source: ommcomnews.com

1. NIIMH was founded in 1956.
2. It is located in Gaddiannaram, Dilsuknagar, Hyderabad. It was previously known as the National Center of Indian Medical Heritage (NCIMH).
3. It operates under the administrative control of the Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of AYUSH, Government of India.
4. It is dedicated to documenting and showcasing medico-historical research in Ayurveda, Yoga Naturopathy, Unani, Siddha, Sowa-Rigpa, Homoeopathy, Biomedicine, and related healthcare disciplines in India.
5. It is known for its extensive collection of research materials on the History of Medicine, making it accessible globally.
6. It supplies resource materials for historians, scientists, and researchers interested in the historical aspects of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, Homoeopathy, and Sowa Rigpa) along with Modern Medicine.
7. It is the only institution of its kind in Southeast Asia, dedicated to the medico-historical research of traditional and modern medicine.
8. NIIMH houses more than 500 physical manuscripts, alongside the Medical Heritage Museum and Library, featuring rare books and manuscripts dating back to the 15th century AD.

UPSC Syllabus: Environment

Przewalski horses

Why in News?

Przewalski horses were reintroduced to their native habitat in Kazakhstan.

About Przewalski horses

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Source: Smithsonian's National Zoo and Conservation Biology Institute

Aspects	Description
About	<ol style="list-style-type: none"> 1. Przewalski horses were found in Mongolia. They are the last truly wild horse. 2. Once thought to be the ancestor to the domestic horse, they are actually distant cousins. 3. Mitochondrial DNA suggests that they diverged from a common ancestor 500,000 years ago.
Physical Description	<ol style="list-style-type: none"> i) They are small, stocky, heavily built with a large head, thick neck, and short legs. ii) They have dun-colored with a dark zebra-like erect mane, no forelock, and a dark stripe along the backbone to a dark, plumed tail. iii) There are markings in their body which are of yellowish-white belly, dark lower legs, and zebra-like stripes behind the knees. iv) Horses can withstand harsh winters with temperatures dropping below minus 30 degrees Celsius.
Native Habitat	<ol style="list-style-type: none"> i) They were originally found across Europe and Asia. Now they are found at reintroduction sites in Mongolia, China, and Kazakhstan. ii) There are now 2,000 Przewalski horses around the world, mainly in China and Mongolia but, they are also found in France, Russia and living wild in the Chernobyl exclusion zone between Belarus and Ukraine.
Diet	Grass and leaves from shrubby trees
Social Structure	Typically consist of several mares, a dominant stallion, and their offspring. Younger stallions form bachelor herds and must defeat the dominant stallion to breed. Offspring are chased out upon reaching breeding age.
Distinction	Wild Status: It is the only true wild horses left. Other "wild" horses are actually feral domestic horses.

Conservation status	IUCN: Endangered
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Four-horned Antelope

Why in the News?

A rare four-horned antelope has been sighted for the first time in the Veerangana Durgavati Tiger Reserve.

About four-horned antelope



Source: The Free Press Journal

Aspects	Description
About	<ol style="list-style-type: none">1. The four-horned antelope, also known as Chousingha, is a small bovid antelope.2. Its scientific name is Tetracerus quadricornis.3. These antelopes are the smallest found in Asia.
Characteristic features	<ol style="list-style-type: none">1. The four-horned antelope has a yellowish-brown to reddish coat, a slender build, small legs, and a short tail.2. One of their unique features is the presence of four horns. Only males grow horns, with one pair located between the ears and another on the forehead.3. These antelopes are typically diurnal and solitary, although they can sometimes be seen in loose groups of three to four.

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Distribution	The four-horned antelope is endemic to India and Nepal. In India, their range extends from the foothills of the Himalayas in the north to the Deccan Plateau in the south.
Habitat	They predominantly inhabit open, dry, deciduous forests in hilly terrain. They prefer areas with significant grass cover or heavy undergrowth and are usually found close to water bodies.
Conservation Status	IUCN Red List: Vulnerable on the IUCN Red List.

About Veerangana Durgavati Tiger Reserve

Aspects	Description
About	<ol style="list-style-type: none">1. Veerangana Durgavati Tiger Reserve is spread across Sagar, Damoh, and Narsinghpur districts in Madhya Pradesh.2. It is the seventh tiger reserve in Madhya Pradesh.3. The reserve will encompass areas within the Nauradehi Wildlife Sanctuary and Durgavati Wildlife Sanctuary.
Characteristic Features	<ol style="list-style-type: none">1. The Singorgarh Fort is located within the reserve.2. The reserve will include areas within the Nauradehi Wildlife Sanctuary and Durgavati Wildlife Sanctuary.3. A green corridor will be developed to connect Panna Tiger Reserve (PTR) with Durgavati facilitating the natural movement of tigers to the new reserve.
Rivers	Parts of the reserve fall under the Narmada and Yamuna River basins.
Vegetation	The vegetation in the reserve is of the dry deciduous type.
Flora	The chief floral elements include Teak, Saja, Dhaora, Ber, Amla, and others.
Fauna	The reserve is home to a variety of animals, including tigers, leopards, wolves, jackals, Indian foxes, striped hyenas, Nilgai, Chinkara, Chital, Sambhar, Black Buck, Barking deer, Common Langur, and Rhesus Macaque.

Report on Nitrous Oxide Emissions

Why in the News?

A new report published by the Global Carbon Project reveals that planet-warming nitrous oxide (N₂O) emissions increased by 40 percent between 1980 and 2020.

Highlights of the Report on Nitrous Oxide Emissions

1. Global Impact

i) Nitrous oxide is the third most significant greenhouse gas, after carbon dioxide and methane.

- ii) Over 100 years, nitrous oxide is 273 times more potent than carbon dioxide.
- iii) The increase in greenhouse gases has already raised the Earth's average surface temperature by 1.15 degrees Celsius compared to the 1850-1900 average.
- iv) Anthropogenic nitrous oxide emissions contribute to about 0.1 degrees Celsius of this warming.

2. Emission Trends

- i) Nitrous oxide emissions grew by 40% between 1980 and 2020.
- ii) China is the largest emitter, followed by India and the United States. The top 10 emitters are China, India, the United States, Brazil, Russia, Pakistan, Australia, Indonesia, Turkey, and Canada.

3. Major Sources

- i) Seventy-four percent of nitrous oxide emissions over the last decade originated from agricultural practices, specifically the use of nitrogen fertilizers and animal manure.
- ii) Other significant sources include industrial activities and the burning of forests or agricultural waste.

4) Atmospheric Concentration

- i) In 2022, the concentration of nitrous oxide in the atmosphere reached 336 parts per billion.
- ii) This concentration is 25% higher than the levels seen before the industrial age (1850-1900) and significantly surpasses the predictions made by the Intergovernmental Panel on Climate Change (IPCC).

About Nitrous oxide

1. Nitrous oxide is commonly known as laughing gas or happy gas.
2. It is a colorless, odorless, and non-flammable gas. While nitrous oxide is not flammable, it supports combustion similarly to oxygen. It leads to a state of euphoria, explaining its nickname 'laughing gas.'
3. Nitrous oxide is soluble in water, and its vapors are heavier than air.

4. Applications:

- i) Medical Use:** Nitrous oxide is commonly used by dentists and medical professionals to sedate patients undergoing minor medical procedures.
- ii) Food Industry:** The gas is also used as a propellant in food aerosols.
- iii) Automotive Industry:** It is used in the automotive industry to enhance engine performance.

MD2 Pineapple

Why in the News?

The Agricultural and Processed Food Products Export Development Authority (APEDA) has facilitated the successful export of the first consignment of MD 2 variety pineapples to the United Arab Emirates (UAE). The consignment included 8.7 metric tons (650 boxes) of MD 2 pineapples.

About MD2 Pineapple

Aspects	Description
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About	<ol style="list-style-type: none">1. The MD 2 pineapple, also known as “Golden Ripe” or “Super Sweet.”2. It was developed by Del Monte in the 1980s through selective breeding.
Production	<ol style="list-style-type: none">1. It is largely cultivated in Costa Rica, the Philippines, and Thailand.2. In India, it is produced in the Sindhudurg district of the Konkan region in Maharashtra.
Unique features	<ol style="list-style-type: none">1. MD2 pineapples are known for their exceptionally sweet flavor, with a sugar content higher than that of traditional pineapples.2. They have lower acidity, making them more palatable and easier on the stomach for those sensitive to acidic fruits.3. These pineapples contain more vitamin C than traditional varieties, making them a healthier choice.
Appearance	MD2 pineapples have a uniform cylindrical shape and a golden-yellow skin when ripe. Their flesh is also more golden compared to other varieties.
Shelf Life	They have a longer shelf life, which makes them ideal for export and extended storage.
Uses of MD2 Pineapple	<ol style="list-style-type: none">i) Nutritional Value: High in vitamins, especially vitamin C, and minerals.ii) Digestive Aid: Contains bromelain, an enzyme that aids in digestion and has anti-inflammatory properties.iii) Versatility: Can be used in a variety of dishes, including salads, desserts, juices, and as a garnish.
Consumption	<ol style="list-style-type: none">i) They are eaten fresh as a snack or in fruit salads.ii) They are used in recipes for cooking and baking, adding a sweet and tangy flavor to dishes.iii) They are also made into fresh juice or smoothies.