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BHARATIYA NYAY SANHITA FOR HIT-AND-RUN CASES

In Context

- Transporters and commercial drivers from States like Maharashtra, Chhattisgarh, West Bengal, and Punjab have staged protests against the **recent legislation concerning hit-and-run incidents.**

About the law

- Section 106 (2) of the **Bharatiya Nyay Sanhita, 2023 (BNS)** stipulates a penalty of up to **10 years in jai**l and a **fine ₹7 lakh for fleeing an accident spot** and failing to report the incident to a police officer or a magistrate.
  - This law is in addition to the colonial-era provision on **causing death** due to rash or negligent acts under **Section 304A of the Indian Penal Code, 1860.**

Need for the law

- The new law comes in the backdrop of concerning figures related to road accidents in India.
  - In 2022, India **registered the highest count of road crash** fatalities, exceeding 1.68 lakh deaths.
- It aims to **deter drivers** from **engaging in rash and negligent** driving that may lead to death.
- The intent is to **punish an offender** in the event that they attempt to escape the law after causing death due to rash and negligent driving.
- The law creates a **positive obligation** on part of the **offender to report such an incident to the police or magistrate.**
- They are also provisions to criminalise the omission in the performance of such a duty.
- The imposition of this legal duty clearly arises from **a legislative intent to enforce moral responsibility** on the part of the offender towards the victim of a road accident.

Data Analysis

- The **National Crime Records Bureau** recorded 47,806 hit and run incidents which resulted in the deaths of 50,815 people in 2022.
- Despite a **5% global decrease in road crash deaths,** India witnessed a year-on-year increase of 12% in road accidents and 9.4% in fatalities in the same year.
- With only 1% of the world's vehicles, India accounts for about 10% of crash-related deaths and incurs an **economic loss of 5-7% of its GDP annually due to road crashes.**

Reasons for Protest

- Transporters have raised concerns that the **offence provides for stringent punishment** even where the accidents are unintentional.
- They say that the penalty **is excessive** and that it fails to consider their challenging work conditions, including long driving hours and difficult roads.
- They argue that accidents may be caused by factors beyond the driver's control, such as poor visibility due to fog.
- The punishment provided by the law is **disproportionate and does not align** with the **realities of road transport** and the nature of accidents.
- The drivers are also concerned that the **law may be abused by law enforcement agencies** to their detriment.

Suggestion and Conclusion

- The way forward is to revisit and reconcile clauses so that more than 35 lakh truck drivers in the country are not treated unfairly, apart from individual vehicle drivers.
- For instance, an exception has been made under 106 (1) of the BNS for doctors in the event of rash or negligent acts, where the punishment will be up to two years with a fine.
  - This limited categorisation is problematic and is against the principles of equality, as the liability of a wide variety of people working in other sectors also needs to be moderated.
- In order to provide a graded liability and commensurate punishment, the acts of rash driving and negligent driving must be separated and placed under different degrees of liability so that all incidents of this nature are not bracketed into one, causing prejudice to the actors.
- The road accidents resulting in minor injuries ought not to be equated with criminal acts.
  - Here measures like community service or revoking of driving licences or mandatory driving retests etc. could be the ways to criminalise.

Source: *TH*

SELF POLLINATION IN PARISIAN PANSIES

In News

- As per a recent study, **Pansy Plants (Viola arvensis)** growing near Paris have evolved themselves to produce less nectar, showing **signs of self-pollination instead of depending on Pollinators.**

What is Pollination?

- Pollination is the act of transferring pollen grains from the male anther (reproductive organ) of a flower to the female stigma (reproductive organ).
- **Plants can be:**
  - **Self-pollinating** - the plant can fertilize itself; or,
  - **Cross-pollinating** - the plant needs a vector (a pollinator or the wind) to get the pollen to another flower of the same species.
- **Pollinators:** Organisms that facilitate the transfer of pollen from the anthers to the stigmas of flowers, leading to fertilization and the production of seeds.
  - **Example:** Bees, butterflies, beetles, moths, wasps.

Major Concerns of Self Pollination

- **Reduction in the Genetic Diversity** among the plant species, make more susceptible to diseases and pests.
- Self-pollination **reduces the adaptability** by limiting the introduction of new genetic traits in the ecosystem.
- Self-pollination may lead to the **expression of deleterious mutations** or harmful recessive traits.
- Like in pansy species, pollinators may enter a loop where plants producing less nectar enable less food availability, driving them towards declines.

Why Pollinators are declining?

- Urbanization, agricultural expansion, and changes in land use destroyed their populations.
- The widespread use of chemical pesticides, herbicides & GMOs have impacted a lot.
- Invasive species and Climate change Impacts

Do You Know?

- The **waggle dance** is a fascinating behavior exhibited by honeybees to communicate information about the location of food sources, such as nectar and pollen, to other members of the hive.
- This dance was first studied and described by **Austrian ethologist Karl von Frisch,** who was awarded the **Nobel Prize in Physiology or Medicine in 1973** for his contributions to the understanding of the honeybee's communication system.

Source: *TH*

SUPERCONDUCTIVITY IN LK-99

Context

- A group of scientists have reported finding a sign of superconductivity in a material called **LK-99** at room-temperature.

What is a superconductor?

- **A superconductor** is a material that can conduct electricity or transport electrons from one atom to another with no resistance.
- This happens at temperatures between **240 K and 275 K,** that is, approximately between **–33 degrees** Celsius and **2 degrees** Celsius.
- This means no heat, sound or any other form of energy would be released from the material when it has reached the temperature at which the material becomes superconductive.

Properties of superconductor

- **Electronic effect:** The material will transport an electric current with zero resistance.
- **Thermodynamic effect:** The electronic specific heat drops drastically at the superconducting transition temperature.
  - The specific heat is the heat required to increase the temperature of the electrons in the material by **1 degree Celsius** drops.
- **Spectroscopic effect:** The electrons in the material are forbidden from attaining certain energy levels, even if they could when the material wasn't a superconductor.
- **Meissner effect:** A material transitioning to its superconducting state, will expel any magnetic field in its bulk to the surface. This expulsion is called the Meissner effect.

Types of superconductors

- There are two types of superconductors, depending on how they respond to a magnetic field.
  - **Type I superconductors:** If the magnetic field applied to a superconductor becomes too strong, the material will completely lose its superconducting state and allow the field to penetrate its body.
  - **Type II superconductors:** When the magnetic field strength crosses a threshold, the extent of superconductivity inside the material will gradually drop until, at a higher second threshold, it vanishes completely.

Applications

- **Magnetic Levitation (Maglev) Trains:** Superconducting magnets enable the development of Maglev trains, which use magnetic repulsion to lift and propel the train above the tracks, minimizing friction and allowing for high-speed travel.
- **Electric Power Transmission:** Superconductors can transmit electrical power with minimal loss, making them ideal for applications where efficiency is crucial.
- **SQUIDS (Superconducting Quantum Interference Devices)** can be used to take magnetic cardiograms based on magnetic fields generated by electric currents in the heart.
- **Power Grids and Fault Current Limiters:** Superconductors can be employed to enhance the efficiency of power grids and act as fault current limiters, preventing damage to electrical equipment during power surges or faults.

Source: *TH*

REVISED PHARMA MANUFACTURING RULES

In Context

- **The Ministry of Health and Family Welfare (MoHFW)** has notified **revised Pharma manufacturing rules** under **Schedule M of the Drugs and Cosmetics Rules, 1945**.

About

- **Schedule M** prescribes the **Good Manufacturing Practices (GMP)** for pharmaceutical products.
  - GMP is **mandatory standards** which builds and brings quality into a product by way of control on materials, methods, machines, processes, personnel, and facility/environment, etc.
  - GMP was first incorporated in Schedule M of the Drugs and Cosmetics Rules, 1945 in **1988** and the last amendment was made in **2005.**
- With the amendment, the words 'Good Manufacturing Practices' (GMP) has been replaced with **'Good Manufacturing Practices and Requirements of Premises, Plant and Equipment for Pharmaceutical Products'**.

Need for Revising the Guidelines

- The move comes in the wake of **overseas deaths** linked to Indian-made drugs since 2022, prompting increased scrutiny of the pharmaceutical industry.
- **To keep pace with fast-changing manufacturing and quality domain**, there was a necessity to revise the principles of GMP mentioned in current Schedule M.
- It brings GMP recommendations **at par with global standards,** especially to those of World Health Organization (WHO), and ensures production of globally **acceptable quality of drug.**
- This will elevate the quality standards of medicines, reinforcing the **reputation of industry and improving patient outcomes**.

Guidelines

- **Implementation:** Large companies, which have a turnover of **more than Rs 250 crore**, will have to implement the guidelines **within the next six months.**
  - Small and medium manufacturers, which have a turnover of **less than Rs 250 crore, will get a year**.
- **Data Security:** Companies should have GMP-related computerised systems, which ensure that there is no tampering of data related to the processes.
- **Testing and Final Product:** Companies **must** market a finished product only after getting **"satisfactory results"** on tests of the ingredients and retain a sufficient quantity of the samples to allow repeated testing or verification of a batch.
- **Addition of Products:** It has **five new categories of drugs** containing hazardous substances such as sex hormones, steroids (anabolic and androgenic), cytotoxic substances, biological products and radiopharmaceuticals.

- **Quality Risk Management:** There must be a comprehensively designed and correctly implemented pharmaceutical quality system incorporating GMP and Quality Risk Management (QRM).
- It introduced the **product quality review (PQR)** by the senior management of the companies annually.
- **Evaluation:** The manufacturer shall evaluate the results of the review and corrective and preventive actions or any revalidation shall be undertaken.

Pharmaceutical Sector in India

- **About:** Indian pharmaceutical industry is the **3rd largest pharmaceutical industry** in the world by volume with a current market size of around approx. USD 50 Billion.
  - It is widely known as **'Pharmacy of the World'.**
- **Significance & potential:**
  - The Indian pharmaceutical industry has played a key role in driving better health outcomes across the world by being a large and reliable supplier of affordable and high-quality generics drugs.
  - The vaccine industry in India has proven its capacity for manufacturing at scale, catering to more than **60% of global vaccine demand.**
  - With a potential to grow up to **USD 120-130 billion dollars** over the next decade.
- **Export:**
  - India exports pharmaceuticals to around **200 countries and territories** in the world, including highly regulated markets such as the USA, UK, European Union, Canada etc.
  - India supplies over 50% of Africa's requirement for generics, ~40% of generic demand in the US and ~25% of all medicine in the UK.
- **Imports:**
  - However, the country also imports various Bulk Drugs/ APIs for producing medicines from various countries.
  - Most of the imports of the Bulk Drug/APIs being done in the country are because of economic considerations.

Source: *TH*

SWITZERLAND'S DECISION TO ELIMINATE IMPORT DUTIES

In Context

- As per the Global Trade Research Initiative (GTRI), **Switzerland's policy** to allow t**ariff-free entry from all countries limit gains for India** under the proposed trade agreement with European Free Trade Association (EFTA).
  - Switzerland has abolished tariffs on products, including chemicals, consumer goods, vehicles, and clothing.

About European Free Trade Association (EFTA)

- It is the intergovernmental organisation of **Iceland, Liechtenstein, Norway and Switzerland.**
- It was set up in **1960** by its then seven Member States for the promotion of free trade and economic integration between its members.
- **Trade with India:** In 2022, the combined EFTA-India merchandise trade surpassed **USD 6.1 billion.**
  - The primary imports to the EFTA States consisted of organic chemicals (27.5%), while machinery (17.5%) and pharmaceutical products (11.4%), constituted the main exports to India.

About India's Trade and Economic Partnership Agreement (TEPA) with EFTA

- Talks on the trade deal began in **2008 and negotiations resumed again in 2016.**
- The latest round of negotiations covered trade in goods and services, rules of origin, Intellectual property rights (IPR), trade and sustainable development, sanitary and phytosanitary measures, technical barriers to trade, trade remedies, and customs and trade facilitations.

How does Switzerland's Policy Effect India's Gains under EFTA?

- **Effect on Negotiations:** Switzerland's decision changes the dynamics of the negotiations as it has profound implications for India's gains from the ongoing India-EFTA trade agreement.
- **Increase in Market Competitiveness:** Switzerland is India's top export destination in EFTA and the import duty abolition means that Indian products would face a higher degree of competition in Switzerland despite a FTA with EFTA.

- **No gains in Agricultural Exports:** Exporting agricultural produce to Switzerland remains challenging due to the complex web of tariffs, quality standards, and approval requirements.
  - EFTA, including Switzerland, has shown no inclination to make agriculture tariffs zero on most basic agricultural produce.
  - Consequently, with zero industrial tariffs and the difficulty in exporting agricultural produce to Switzerland, India's prospective gains in merchandise exports are effectively nullified.
- **Trade Deficiet with Switzerland:** In FY2023, India's imports from Switzerland stood at $15.79 billion, in stark contrast to its exports of $1.34 billion, leading to a **substantial trade deficit of $14.45 billion.**
  - Switzerland's policy will widen this trade deficit further.

Conclusion

- The trade agreement in the current format will not help Indian exports and will result in higher imports and wider trade deficit.
- India must navigate these negotiations with a focus on balancing trade, protecting domestic interests, and securing a fair and beneficial agreement.

Source: *IE*

WASTEWATER SURVEILLANCE TO STUDY DISEASES

Context

- **Wastewater surveillance** can be a tool to monitor the presence of pathogens of diseases like malaria, dengue etc.

Vector-borne diseases

- Vector-borne diseases are human illnesses caused by **parasites, viruses and bacteria** that are transmitted by vectors. Example: Malaria, Dengue etc.
- Vector-borne diseases account for more than **17% of all infectious diseases,** causing more than **700 000 deaths** annually. They can be caused by either parasites, bacteria or viruses.

Need of Wastewater surveillance

- **Early warning of pandemics:** It can provide early warning signs of the presence of infectious diseases, such as viruses or bacteria, in a community. This allows for a quicker response to potential outbreaks and the implementation of public health measures.
  - Wastewater surveillance carried out by the Tata Institute for Genetics and Society (TIGS) in **Bengaluru** was able to detect a silent wave of the **XBB.1.16 Omicron** variant in the city.
- **Non-invasive Population Screening:** Wastewater surveillance is a passive method that does not rely on individuals seeking testing.
- **Identification of Asymptomatic Carriers:** Wastewater surveillance can identify individuals who are shedding infectious agents, even if they are asymptomatic.
- **Tracking Trends and Variants:** Continuous monitoring of wastewater allows for the tracking of trends in the prevalence of specific pathogens over time.
- **Cost-Effective and Scalable:** It is a cost-effective and scalable method, especially in large populations. It provides a snapshot of the health status of an entire community without the need for individual testing, making it a resource-efficient approach.
- **Integration with Traditional Surveillance:** Wastewater surveillance complemented with traditional surveillance methods, such as clinical testing and case reporting provides a more comprehensive understanding of the health landscape.

Challenges

- **Data Interpretation:** Interpreting the data from wastewater surveillance requires expertise in epidemiology, virology, and environmental science. Establishing clear guidelines for interpreting results and translating them into actionable public health measures is essential.
- **Detection Limits and Sensitivity:** The sensitivity of detection methods for pathogens in wastewater may vary, and some low concentrations may go undetected.
- **Dilution Effects:** Dilution of wastewater in sewer systems can lead to underestimation of pathogen concentrations.
- **Pathogen Stability:** The stability of pathogens in wastewater can be influenced by environmental factors, such as temperature and pH.

- **Delay in reporting results:** most wastewater samples are sent to laboratories, with analysis involving either **polymerase chain reaction (PCR)** or **genome sequencing,** for identifying new variants. These methods incur a long delay in reporting results.
  - Also the presence of **PCR inhibitors** in wastewater may lead to inconsistent results.
- **Inappropriate results:** In India, besides people shedding the pathogens through stools, there are several mammals, including nonhuman primates, that serve as reservoir hosts of malaria and dengue.
  - So it is difficult to say that all the malaria and dengue microbes detected in wastewater are excreted only by humans.

Global Practices

- Wastewater surveillance has been routinely used for decades for tracking the **polio virus** in various countries.
- In 2022, Bangladesh launched a wastewater surveillance programme to track and monitor the pathogens like **Salmonella typhi, Vibrio cholerae, and rotavirus** in the communities.

Way Ahead

- While selecting priority pathogens of wastewater surveillance, it is essential to consider the limitations and challenges that arise from different sanitation systems and host-parasite geography.
- Hence the implemented techniques must be sensitive and specific, provide comprehensive and objective data, realize results in real-time, be able to monitor multiple diseases and pollutants, even those which are typical, be scalable and cost-effective; and be easy-to-use and demand no specialist resources.

Source: *TH*

"THE ROLE OF E-FUELS IN DECARBONISING TRANSPORT" REPORT

Context:

- The **International Energy Agency (IEA)** released a report titled **"The Role of E-fuels in Decarbonising Transport"**.

About

- The report extensively **explores the potential and challenges of e-fuels as a solution for decarbonizing the transport sector.**

Key Findings

- **Rapid deployment of low-emission fuels:** Significant reductions in fossil fuel demand are possible in road transport through fuel **efficiency improvements and surging sales of electric vehicles (EVs).**
- **E-fuels crucial for deep decarbonization: Fuels obtained from electrolytic hydrogen, or e-fuels**, could be a viable pathway and scale up rapidly by 2030, underpinned by a **massive expansion of cheaper renewable electricity** and anticipated cost reductions of electrolysers.
- The report highlights the **limitations of electrification** for achieving **net-zero emissions in sectors like aviation and shipping.**
  - **E-fuels, with their near-zero carbon footprint,** are deemed essential for deep decarbonization in these areas.
- **Technological and economic viability:** The report acknowledges the current high cost of e-fuels but forecasts substantial cost reductions with technological advancements and economies of scale.
- **Infrastructure compatibility:** E-fuels can be readily used in existing infrastructure and engines, eliminating the need for extensive infrastructure upgrades that electrification necessitates in certain sectors.
- **Resource considerations:** Producing e-fuels at scale will require significant renewable energy, water, and potentially captured CO2. Sustainable management of these resources is crucial to ensure e-fuels don't create new environmental concerns.
- **Policy recommendations:** The report calls for governments to implement supportive policies including carbon pricing, research and development funding to create a conducive environment for their production and adoption.

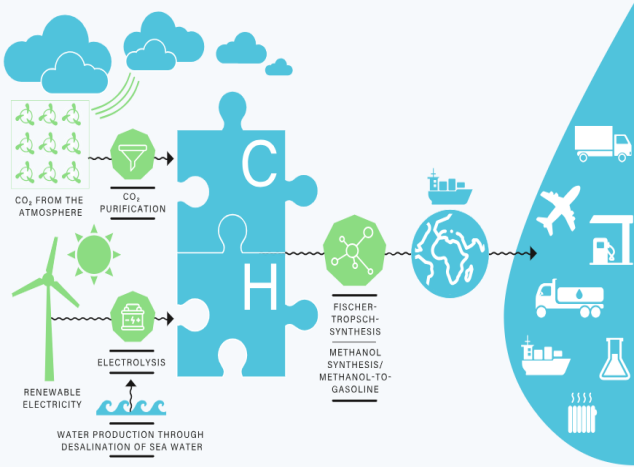
E-fuels

- E-fuels (Electrofuels), also known as **synthetic fuels, are low-emission liquid or gaseous fuels** produced from **renewable energy source**s like solar or wind power, water, and captured carbon dioxide.
  - **Eg.** eGasoline, eDiesel, eHeating oil, eKerosene, e-methane, e-kerosene and e-methanol.

- They **can be tailored to replace conventional fuels** like gasoline, diesel, and jet fuel, offering a drop-in solution for existing engines and infrastructure.
- In transport, low-emission e-fuels **provide a complementary solution to sustainable biofuels.**
  - Particularly in aviation, **e-fuels benefit from their ability to use existing transport**, storage, distribution infrastructure and end-use equipment.

How are eFuels produced?

- eFuel production is based on the **extraction of hydrogen**. This happens by means of an **electrolysis process** that **breaks down water** (e.g. seawater from desalination plants) into its components of **hydrogen and oxygen.**
- In a second process step, with the aid of e.g. **Fischer-Tropsch synthesis**, the **hydrogen is combined with CO2** extracted from the air and converted into a **liquid energy carrier-eFuel.**
- After processing in refineries, **this eFuel can be used as eGasoline, eDiesel, eHeating oil, eKerosene and eGas** and can completely replace conventional fuels.
- Moreover, due to their **drop-in capability**, eFuels **can be blended with conventional fuels** in any ratio.



Benefits of e-fuels

- **Deep decarbonization:** E-fuels offer the potential for near-zero greenhouse gas emissions compared to fossil fuels, especially when combined with renewable energy sources and carbon capture technologies.
- **Versatility:** They can be used in existing transportation infrastructure and engines, requiring minimal adaptation compared to full electrification.
  - This makes them particularly attractive for sectors like aviation and shipping, where battery technology has limitations.
- **Energy security:** E-fuels can reduce dependence on fossil fuel imports and provide a domestic source of clean energy for transportation.

Challenges

- **Cost:** Currently, e-fuels are significantly more expensive to produce than fossil fuels. However, costs are expected to decrease as production scales up and technological advancements occur.
- **Scalability:** Large-scale production of e-fuels currently faces limitations in terms of renewable energy availability and infrastructure for water and carbon dioxide capture.
- **Geopolitical implications:** Increased reliance on e-fuels may shift dependence from oil-producing countries to countries with abundant renewable resources, potentially creating new geopolitical dynamics.
- **Costly: Low-emission e-fuels are currently expensive to produce**, but their cost gap with fossil fuels could be significantly reduced by 2030.
- **Huge investment: Accelerated deployment of low-emission e-fuels** for shipping would require significant investments in refueling infrastructure and in vessels.
  - Achieving a 10% share in shipping would require around 70 Mt/yr of e-ammonia or methanol. This is **3.5 times the current global traded volume** of ammonia or two times the trade in methanol.
- **Access to CO_2:** It is an important constraint to **carbon containing low-emission e-fuels.**
  - The best wind and solar resources are **not necessarily co-located with significant bioenergy resources**, which puts additional constraints on siting e-fuel projects that require carbon input.

SCALING UP E-FUELS: MEASURES TO UNLEASH POTENTIAL

Cost Reduction:

- **Policy support:** Governments need to take bolder actions in carbon pricing mechanisms, tax breaks, and subsidies that can incentivize e-fuel production and make it competitive with fossil fuels.
- **Technological advancements:** Research and development efforts targeting more efficient electrolysis, carbon capture, and conversion technologies can significantly reduce production costs.
- **Economies of scale:** Investing in large-scale production facilities can leverage economies of scale and bring down e-fuel prices closer to fossil fuels.

Infrastructure Development:

- **Renewable energy:** Expanding renewable energy capacity is crucial to provide the clean electricity needed for e-fuel production.
- **Water and CO2 management:** Sustainable water management and infrastructure for capturing and utilizing CO2 are essential to ensure environmental responsibility.
- **Distribution and storage:** Building infrastructure for e-fuel distribution and storage across transportation hubs is vital for widespread adoption.

Market Creation and Demand Stimulation:

- **Public procurement:** Governments can create demand by mandating e-fuel blends in public transportation fleets and aviation fuel.
- **Corporate commitments:** Airlines, shipping companies, and fuel suppliers can set ambitious targets for e-fuel adoption, driving market demand.

Regulatory and Policy Framework:

- **Carbon-neutral fuel standards:** To enable widespread adoption, e-fuels will need to meet internationally agreed technical and safety standards for measuring life-cycle GHG emissions.
- **International cooperation:** Global collaboration on research, development, and policy frameworks can accelerate e-fuel innovation and deployment.

Way Ahead:

- Overall, **e-fuels have the potential to play a crucial role in decarbonising the transport sector** alongside other solutions like electrification.
- **Addressing the challenges through continued research, technological development, and investment in production infrastructure** is key to unlocking their full potential in the fight against climate change.
- Bringing the GHG emissions of the road transport sector down to zero by 2050 cannot be achieved by one measure alone. Countries that deploy a set of different measures such as **reducing transport demand, improving vehicle efficiency, and adding renewable energy carriers such as biofuels.**

Source: ***IEA***

NEWS IN SHORT

SEVEN PRODUCTS FROM ODISHA GET GI TAG

Context

- Seven products from Odisha, have bagged the Geographical Indication (GI) tag.

Kapdaganda shawl

- The shawl is woven and embroidered by the women of the **Dongria Kondh tribe.**
- It is embroidered on an off-white coarse cloth with **red, yellow and green** coloured threads, with each color holding significance.
- The motifs in the shawls are mostly **lines and triangles,** believed to be a reflection of the importance of mountains for the community.

Lanjia Saura Painting

- The painting is also known as **Idital** and belongs to the **Lanjia Saura community.**

- The paintings feature subjects like tribal humans, trees, animals, birds, the Sun and the Moon. These are White paintings over a crimson-maroon background.

Koraput Kala Jeera Rice

- It is also known as the '**Prince of Rice',** famous for its aroma, taste, texture and nutritional value.
- Consumption of the rice variety helps in increasing hemoglobin levels and improves metabolism in the body.

Similipal Kai chutney

- The chutney is made with red weaver ants, found in the forests of Mayurbhanj, including in the Similipal forests – Asia's second-largest biosphere.
- It is rich in medicinal and nutritional value, the chutney is believed to be a good source of nutrients like protein, calcium, zinc, vitamin B-12, iron, magnesium, potassium, etc.

Nayagarh Kanteimundi Brinjal

- It is known for its **prickly thorns** on the stems and the whole plant.
- The green and round fruits contain more seeds as compared to other genotypes.
- The plants are **resistant to major insects** and can be grown with minimal pesticide.

Khajuri Guda

- It is a dark brown jaggery extracted from date palm trees and has its origin in the **Gajapati district.**
- Traditionally, the jaggery is prepared in a trapezoidal form called '**Patali Gur'** and is organic by nature.

Dhenkanal Magji

- It is a type of sweet made from cheese from buffalo milk, by draining moisture from the cheese and then frying it, finally forming balls from the mixture.
- **Mandar-Sadangi** area of **Gondia block** is believed to be the center of origin of the sweet stuff.

What is Geographical Indication (GI)?

- A geographical indication (GI) is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- In order to function as a GI, a sign must identify a product as originating in a given place.
- Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.

Governing laws

- Under the Paris Convention for the Protection of Industrial Property, geographical indications are covered as an element of **Intellectual property rights (IPRs).**
- They are covered under the **Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement,** which was part of the Agreements concluding the Uruguay Round of GATT negotiations.
- Geographical indication is also defined in the **Geneva Act** of the **Lisbon Agreement** on Appellations of Origin and Geographical Indications.

GI Tags and India

- The Geographical Indications of **Goods (Registration and Protection) Act,1999** seeks to provide for the registration and better protection of geographical indications relating to goods in India.
- The Act is administered by the Controller General of Patents, Designs and TradeMarks- who is the Registrar of Geographical Indications.
- The registration of a geographical indication is valid for a period of **10 years.**

Source: *IE*

PRAVASI BHARATIYA DIVAS

In Context

- Pravasi Bharatiya Divas, also known as **Non-Resident Indian (NRI) Day**, is celebrated on **January 9.**

About

- It is observed to mark the **contribution and achievements** of the **overseas Indian community** to the development of India.
- The day also commemorates the **return of Mahatma Gandhi from South Africa** to India **in 1915.**
- Pravasi Bharatiya Divas was first celebrated in **2003** and is the flagship event of the **Ministry of External Affairs.**
- Its format was later revised in 2015 to celebrate the event **once every two years** and to hold theme-based conferences during the intervening period with participation from overseas diaspora experts, policy-makers, and stakeholders.

Source: ***PIB***

BIO-IMAGING BANK

In News

Mumbai's Tata Memorial Hospital (TMH) established Bio-Imaging Bank given the **escalating cases of cancer**

'Bio-Imaging Bank'

- The multi-institutional project is funded by the **Department of Biotechnology**, in collaboration with IIT-Bombay, RGCIRC-New Delhi, AIIMS-New Delhi, and PGIMER-Chandigarh.
- It aims to create a **robust repository encompassing radiology and pathology** images, **intricately linked** with **clinical information**, outcome data, treatment specifics, and additional metadata.
- This comprehensive resource is strategically designed for the training, validation, and rigorous testing of AI algorithms.

Initially focusing on **head neck cancers** and **lung cancers,** with a minimum of 1000 patients for each cancer type.

AI's role in cancer detection

- AI contributes significantly to cancer detection by emulating the human brain's information processing.
- In cancer diagnosis, AI analyses radiological and pathological images, learning from extensive datasets to recognise unique features associated with various cancers.
- This technology facilitates early detection by identifying tissue changes and potential malignancies.

Current Usage :

- TMH has already added the data of 60,000 patients into the biobank over the previous year, started using AI to reduce radiation exposure for paediatric patients undergoing CT scans.

Concerns

- The use of AI tools raises debates about potential replacement of human radiologists, facing regulatory scrutiny and resistance from some doctors and health institutions.

Future Outlook

- In the future, AI is poised to play a transformative role in cancer treatment, particularly in mitigating fatalities in rural India.
- AI's potential lies in tailoring treatment approaches based on diverse patient profiles, and thus optimising therapy outcomes.
- It is poised to significantly enhance precision in cancer solutions.

Source:*IE*

HEDGE FUNDS

In News

- Global hedge funds sold more than bought equities for a third consecutive week .

About Hedge funds

- Hedge funds **pool money** from **investors and invest** in securities or other types of investments with the goal of getting positive returns.
- They are not regulated as heavily as mutual funds and generally have more leeway than mutual funds to pursue investments and strategies that may increase the risk of investment losses.
- They are limited to wealthier investors who can afford the higher fees and risks of hedge fund investing, and institutional investors, including pension funds.

Source: ***TH***

SULPHUR-COATED UREA

Context

- The **Ministry of Chemicals and Fertilizers** has paved the way for the launch of **sulphur-coated urea** under the brand name **"Urea Gold."**

Benefits of Sulphur-coated urea

- SCU is a **granular fertilizer** produced by **coating regular urea with sulphur.**
- Sulphur-coated urea will be **more economical and efficient than the currently used Neem-coated urea.**
- **Improved soil health:** The new sulphur-coated urea **will address Sulphur deficiency in the Indian soil.**
    - Sulphur-coated Urea is expected **to play a pivotal role in enhancing soil health, optimizing nutrient release, and ensuring improved crop yields.**
- **Increased nitrogen use efficiency:** SCU releases nitrogen slower and more evenly, reducing nitrogen losses through leaching and volatilization.
- **Reduced environmental impact:** Lower nitrogen losses help prevent water pollution and greenhouse gas emissions associated with traditional urea.
- **Save input costs:** It will also save input costs for the farmers and raise incomes for farmers with enhanced production & productivity.

Source: ***Print***