UPSC Daily Current Affairs| Prelim Bits 28-03-2025

Origin of Water in the Universe

Prelims *– General science.*

Mains *–* GS III | *Awareness in the fields of IT, Space, Computers, robotics, Nano technology, bio-technology.*

Why in news?

A recent study published in Nature Astronomy suggests that the earliest stars, known as Population III stars, were significant sources of water in the universe.

- **Big Bang and First Stars** – The universe began approximately 13.8 billion years ago with the Big Bang.
- First stars emerged just a few hundred million years after this cosmic explosion.
- *Initial stars were composed entirely of hydrogen and helium*.

Water *is the third most abundant molecule in the universe, after hydrogen and carbon monoxide.*

- **Three groups of stars** – Based on stars age and metallicity (i.e. proportion of any element other than hydrogen and helium), *astronomers divide stars into 3 groups*.
- The 3 groups are Population I stars, population II stars and population III stars.
- *Population I stars, like the sun, are the youngest* and are the most metal-rich, while population II stars are older and are less metallic.
- **Population III Stars** – Are the *oldest stars* that played a *crucial role in water formation*.
- These massive stars were hundreds of times larger than our sun and they had *extremely short lifespans* due to their immense size.

The longevity of a star depends on its mass. More massive stars die faster. The more the mass of the star, the more heat it has and thus die faster than the star with lesser mass.

- **Water-Creating Event** – When Population III Stars exhausted their hydrogen fuel, they exploded as supernovae.
- During these explosions, they produced and expelled oxygen and *oxygen combined*

with hydrogen created water molecules.
- This process occurred between 50 million and 1 billion years after the Big Bang.
- **Scientific Significance** – This study necessitates a *revision of the cosmic timeline*, as it indicates water's presence in the early universe occurred significantly sooner than previously believed.
- Potential implications for the origins of life.
- Possibility of planet formation with water much earlier in cosmic history.

Reference

The Hindu | The Universe's First Water

Public Accounts Committee's (PAC) Report on GST

Prelims – *Economic and Social Development.*

Current events of national and international importance.

Mains *– GS II | Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.*

Why in the News?

Recently, Public Accounts Committee (PAC) has recommended the Finance Ministry to undertake a comprehensive review of the GST framework to identify and eliminate unnecessary procedures and requirements that complicate compliance.

- **PAC** – It is a *parliamentary committee* which was *established in 1921*.
- It is responsible for *auditing the revenue and expenditure* of the government and thereby ensuring financial accountability and transparency in public spending.
- **19th PAC report on GST** – It seeks comprehensive review of GST framework with stakeholder consultation.
- **Issues raised** – It *flags criminal penalties* meted out for compliance failures, with some honest taxpayers facing criminal penalties even in cases of unintentional errors.
- It critics the initial steps taken towards biometric-based Aadhar authentication as they are "riddled with so many issues.

PAC's recommendations to Finance Ministry

- **Streamlining return filing process** – Consolidating forms and *reducing the frequency of filing* where possible.
- **Adopting a top tiered compliance** – Simplifying process for smaller businesses thereby *reducing the burden on smaller taxpayers.*
- **User friendly GST portal** – Providing a clear *guidance and support to taxpayers* at every step in the filing.
- **Incorporating new technologies -** Data analytics and artificial intelligence tools can

be used for an accurate projection of the revenue to be collected.

- **Transparent refund processing system** – Having *timelines for processing claims* and regular updates to taxpayers.
- **Grievance redressal mechanism** – Establishing a mechanism to allow tax payers to raise concerns and receive prompt assistance.
- **Other recommendations** – It sought a case management system for the *real-time tracking of pending cases* and monitoring of all GST-related documents in digital form.

Goods and Services Tax (GST)
• **GST** – A form of *indirect tax* levied on most of the goods and services sold in India for domestic consumption. • It is a *destination-based taxation* system. • **Launch** – It came into effect *on 1st July 2017*, passed by *101st Constitutional Amendment Act in 2016*. - **Article 246A** – Concurrent power of Parliament and the State Legislatures to make laws related to GST. - **Article 269A** – Inter-state GST - **Article 279A** – GST Council. • **Motto** - "One nation, One market, One tax".

Reference

The Hindu| PAC's Comprehensive Review of GST

South Island

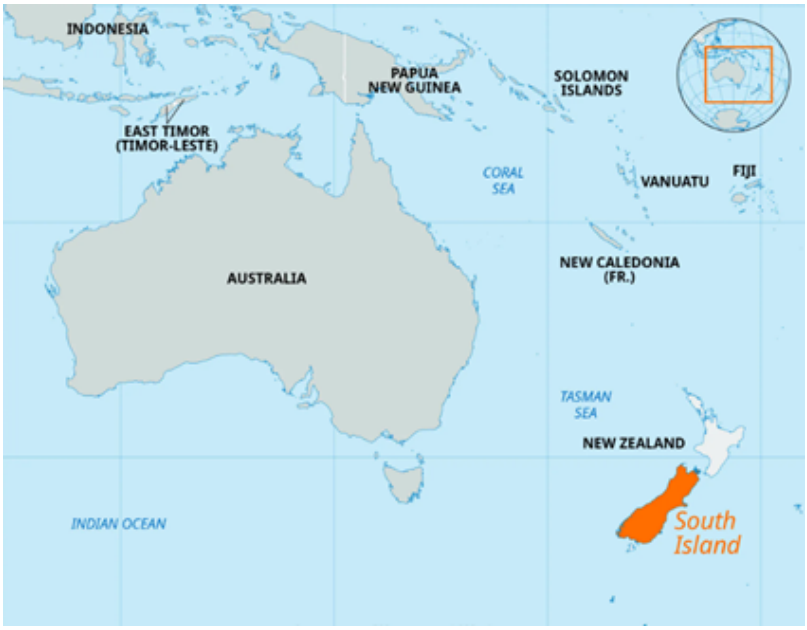
Prelims *– Current events of International Importance*

Mains *– Important Geophysical Phenomenon*

Why in News?

A strong 6.7 magnitude earthquake struck off New Zealand's South Island recently.

- It is one of the ***larger and southernmost of New Zealand*** in the southwestern Pacific Ocean.
- **Straits -** South Island is separated from North Island to the north by ***Cook Strait*** and from Stewart Island to the south by ***Foveaux Strait***.
- **Geography -** Mountainous terrain occupies almost three-quarters of South Island.
- It is dominated by the ***Southern Alps*** which divide the island and affect both climate and flora.
- The Alps divide the *Westland Plain from the Canterbury Plains.*
- **Fiordland National Park**, distinctive area with numerous coastal fjords (inlets) and high lakes is situated in this island.
    - It is part of the Te Wahipounamu *UNESCO World Heritage site.*



- **Lakes** - Lake Tekapo, Lake Wakatipu, and Lake Pukaki.
- **Urban areas -** Christchurch, Dunedin, and Invercargill.

References

1. Alzajeera | Earthquake in New Zealand's South Island
2. Britannica | South-Island-New-Zealand

Third Battle of Panipat

Prelims *– History of India*

Mains *– Significant issues in Modern Indian History*

Why in News?

Maharashtra Chief Minister Devendra Fadnavis recently said that the Third Battle of Panipat was a testament to the bravery of the Marathas and not a reminder of their defeat.

- **Background -** The Maratha Empire, having expanded its influence after weakening the Mughal Empire, faced a challenge from Ahmad Shah Durrani, who sought to assert his authority in the region.
- **Time period -** ***January 14, 1761, at Panipat***, about 95.5 km north of Delhi.
- **Opposing sides**

Maratha Empire	**Coalition of the** **King of Afghanistan**, Ahmad Shah Durrani with **2 Indian Muslim allies** - Rohilla Afghans of the Doab, and Shuja-ud-Daula, the Nawab of Oudh.

- **Maratha Leadership-** Sadashivrao Bhau, the commander-in-chief of the Maratha

camp.

- **Afghan Leadership -** Ahmad Shah Durrani, also known as Ahmad Shah Abdali.
- **Causes -** Baji Rao's son, Balaji Baji Rao (popularly known as Nana Saheb), increased the territory under Maratha control by invading Punjab in 1758.
- This brought the Marathas into direct confrontation with the Durrani empire of Ahmad Shah Abdali.
- In 1759 Abdali raised an army from the Pashtun tribes and made several gains against the smaller Maratha garrisons in Punjab.
- He then joined with his Indian allies, the Rohilla Afghans of the Gangetic Doab, forming a broad coalition against the Marathas.
- Militarily, the battle pitted the French-supplied artillery and cavalry of the Marathas against the heavy *cavalry and mounted artillery (zamburak and jizail)* of the Afghans and Rohillas led by Ahmad Shah Durrani and Najib-ud-Daulah, both ethnic Pashtuns.
- **Outcome -** The Afghan forces led by *Ahmad Shah Durrani won the Third Battle of Panipat*.
- About 40,000 Maratha prisoners were slaughtered in cold blood the day after the battle.
- The battle halted Maratha advances in the north, destabilizing territories for 10 years, culminating in Peshwa Madhavrao's rule, which revived Maratha domination after Panipat's defeat.
- In 1771, after Panipat, a Maratha army was sent to North India to re-establish Maratha domination and punish refractory powers.

Reference

The Hindu | Third Battle of Panipat

Commission on Genetic Resources for Food and Agriculture

Prelims *– General issues on Biodiversity*

Mains *– Biodiversity*

Why in News?

Parties to the Commission on Genetic Resources for Food and Agriculture gathered in Rome for their 20th meeting (CGRFA-20).

- It is the ***only permanent intergovernmental body*** that addresses the components of biological diversity for food and agriculture.
- **Established by –** Food and Agriculture Organization in 1983.
- **Headquarters –** Rome, Italy.
- The commission is part of the ***United Nation Food and Agriculture Organisation (FAO).***
- **Aim -** To reach international consensus on policies for the sustainable use and

conservation of Genetic Resources for Food and Agriculture (GRFA) and the fair and equitable sharing of benefits derived from their use.

- Over time, the mandate of the Commission expanded, and now ***it deals with all sectors of GRFA*** including plant, animal, forest, aquatic, and microbial and invertebrate genetic resources.
- The Commission also considers food security, nutrition and human health, mitigation of and adaptation to climate change, access to genetic resources and benefit sharing (ABS), and digital sequence information (DSI) on GRFA and biotechnologies for the characterization, sustainable use and conservation of GRFA.
- **Members -** 179 member countries and the European Union.
- **India** is a member to this commission.
- **Reports -** The work of the Commission on Animal Genetic Resources (AnGR) initiated in 1997 resulted in preparation of the 1st-ever Report on the State of the World's AnGR in 2007.
    - It led to negotiation and adoption of the Global Plan of Action for AnGR (GPA), also in 2007.
- The endorsement of the GPA by the FAO Conference provided for commitments at the national level.
- The Commission monitors progress in the implementation of the GPA and the status and trends of AnGR on a *biennial basis.*
- Preparation of the 2nd Report on the State of the World's AnGR in 2015 further strengthened the commitment to implement the 2007 GPA.
- The Commission plays an important role in supporting animal breeding and the livestock sector.
- It was instrumental in building the knowledge base on AnGR, creating a framework for action and supporting measures for its implementation.
- **Important treaty -** International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), adopted in 2001.

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
• It is the major international agreement between member countries to conserve, use and manage plant genetic resources for food and agriculture around the world for the benefit of people everywhere. • The Treaty ensures that farmers and plant breeders' access, easily, the raw genetic material needed to develop new crop varieties, including those with higher yields and those that are resilient to climate change. • It provides a global solution to the challenges of crop diversity loss and climate change adaptation through mechanisms such as the Multilateral System and Benefit-sharing Fund.

Reference

Down to Earth | Commission on Genetic Resources for Food and Agriculture

Social Security Schemes

Prelims *– Indian Polity and Governance.*

Mains *– GS I | Social empowerment, GS III | Government policies and interventions.*

Why in News?

Union Labour Ministry has conducted a comprehensive data-pooling exercise in collaboration with the International Labour Organization (ILO).

Key findings of the report

- As per ***ILO's World Social Protection Report (WSPR)*** 2024-26 India's social protection coverage has doubled from 2021 to 2024.
- Nearly **65%** of the country's population is covered by at least one social protection benefit (cash and in-kind both), with 48.8% receiving cash benefits.
- However, the ministry has stated that the ILO's estimate is an underestimation, as it does not account for
    - In-kind benefits such as food security and housing benefits and
    - Social protection schemes administered by the States.

Social Security

- It is the legal protection provided to individuals and households which helps to guarantee healthcare access and income security, especially in the event of *old age, unemployment, illness, invalidity, work-related injuries, pregnancy or the death of a breadwinner.*
- **Types of social security**
- Direct cash transfer (Example: Pensions, employment benefits).
- In-Kind benefits (Example: subsidised food, healthcare, housing support).
- Employment based schemes (Example: MGNREGA, EPF, ESI).

Constitutional and legal framework

Constitutional Provisions

- **Fundamental Rights - *Article 21 (Right to life)*** includes the right to live with dignity, which extends to social security benefits.
- **Directive Principles of State Policy (DPSP)**
    - **Article 41** (Right to work, education, and public assistance),
    - **Article 42** (Provision for just and humane conditions of work), and
    - **Article 43** (Living wage and social security for workers) guide social security policies.

Legal framework

- Social Security to the workers in the organized sector is provided through five Central Acts namely,

- **Employees' Provident Fund and Miscellaneous Provisions Act, 1952** - Ensures provident fund, pension, and family pension for employees in *20+ workers establishments* (wage ceiling: Rs15,000/month); separate laws for coal mines & tea plantations.
- **Employees' State Insurance Act, 1948** - Covers employees in establishments with *10+ workers*, providing medical, sickness, maternity, and disability benefits (wage limit: Rs21,000, Rs25,000 for PwDs); extended to 35 States/UTs.
- **Payment of Gratuity Act, 1972** - Provides *15 days' wages per year of service* to employees with *5+ years* in establishments with *10+ workers.*
- **Maternity Benefit Act, 1961** - Grants *26 weeks paid leave* (12 weeks for third child, adoption, or surrogacy) to eligible women employees.
- **Compensation Act, 1923** - Provides compensation to employees or dependents in case of employment-related injury or death.

Social security schemes to unorganized sector

- **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) & Pradhan Mantri Suraksha Bima Yojana (PMSBY) -** Life and Disability cover.
- **Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (ABPMJAY)** – Provides an annual health cover of Rs. 5 lakhs per eligible family.
- **Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM) –** Provide old age protection
- **PM Street Vendor's Atma Nirbhar Nidhi (PM SVANidhi) Scheme –** Provide collateral free working capital loan to street vendors.
- **e-Shram portal -** Create National Database of Unorganised Workers.

References

1. The Hindu | Social Security
2. Vikaspedia | Social Welfare

One Liners 28-03-2025

History, Art and Culture

Post Office Honors Mata Karma

20. *Department of Posts released a commemorative stamp for Mata Karma's 1009th birth anniversary in Raipur, recognizing her spiritual and social contributions.*

• **Mata Karma –** Devotee and Reformer was a spiritual leader devoted to Lord Krishna, known for her dedication to social reform and women's empowerment.

• **Spiritual Journey and Divine Offering –** Her devotion led her to Puri, where she offered khichdi to Lord Krishna, a ritual now part of the Jagannath Temple's traditions.

• **Social Reform Efforts –** She actively fought against social evils like untouchability and conservatism, advocating for unity and equality.

• **Enduring Legacy –** Mata Karma's teachings continue to inspire generations to combat discrimination and promote social harmony, leaving a lasting impact on Indian culture.

"Baalpan ki Kavita" Launched

Recently, Department of School Education & Literacy (DoS&E), Ministry of Education, launched "Baalpan ki Kavita" to preserve and promote Indian rhymes for young children, aligning with NEP 2020.

• **Initiative's Core Purpose –** The initiative aims to compile nursery rhymes and poems in Indian languages and English, rooted in Indian culture, to enhance early childhood education.

• **Contribution Categories –** Contributors can submit existing folklore rhymes or new poems for children in pre-primary (3-6 years), Grade 1 (6-7 years), and Grade 2 (7-8 years) categories.

• **Key Objectives –** The initiative seeks to provide culturally relevant, joyful learning experiences, strengthen multilingual education, and ensure age-appropriate learning materials.

• **Promoting Cultural Preservation –** Baalpan ki Kavita encourages public participation in preserving traditional Indian rhymes, fostering cultural continuity and engagement.

Geography

Ancient Impact Crater Discovered

Scientists have recently found Earth's oldest known meteorite impact crater in Western Australia's Pilbara region, dating back over 3.5 billion years.

• **Significance of the Age –** This crater is more than a billion years older than any previously discovered impact site, reshaping our understanding of early Earth.

• **Impact on Continental Formation –** The discovery supports theories that meteorite impacts played a crucial role in forming Earth's first continents.

• **Influence on Early Processes –** The crater's age suggests it may have significantly influenced chemical and biological processes during Earth's infancy.

• **Supporting External Force Theory –** The findings bolster the hypothesis that external forces, like meteorite impacts, were key drivers in early continental formation, not just internal geological activity.

Polity & Governance

Telangana Adopts Central Organ Transplant Act

Recently, Telangana has adopted the Transplantation of Human Organs and Tissues Act, 1994, replacing its 1995 legislation. This aligns the state with national standards and incorporates the 2011 amendments.

• **Purpose of the Act –** The Act regulates the removal, storage, and transplantation of human organs and tissues, aiming to prevent illegal commercial dealings and ensure ethical practices.

• **Organ Donation Sources –** The Act permits organ donations from both deceased and living donors.

• **Living Donor Eligibility –** Must be close relatives, such as parents, siblings, or spouses. Altruistic donations from distant relatives or friends are allowed but require rigorous scrutiny.

• **Regulatory Framework –** The Act defines the roles of healthcare providers and hospitals, establishing penalties for violations to maintain transparency and prevent exploitation.

BHIM 3.0 Version

National Payments Corporation of India (NPCI) has recently launched the BHIM (BHarat Interface for Money) 3.0.

• **Multilingual Accessibility –** BHIM 3.0 supports 15+ Indian languages, broadening its reach and user-friendliness.

• **Optimized for Low Connectivity –** The app is designed to function smoothly in areas with poor or unstable internet, ensuring reliable service.

• **Integrated Task Assistance –** A built-in task assistant provides timely reminders for pending bills, UPI Lite activation, and low UPI Lite balance alerts, improving user management.

• **BHIM Vega for Merchants –** This new feature offers an in-app payment solution for merchants, simplifying transaction processes.

• **Seamless Merchant Platform Integration –** BHIM Vega integrates directly with online merchant platforms, eliminating the need for third-party apps and enhancing customer convenience.

Economy

CBDT Increases Safe Harbour Threshold

The Central Board of Direct Taxes (CBDT) has amended Income-tax Rules, raising the safe harbour threshold from Rs200 crore to Rs300 crore. This adjustment aims to reduce litigation and simplify transfer pricing compliance for taxpayers.

• **Understanding Safe Harbour Rules –** Safe harbour rules, established under Section 92CB of the Income-tax Act, 1961, are a vital part of India's transfer pricing framework. They allow eligible taxpayers to adopt predefined prices for specific international transactions, thereby minimizing disputes with tax authorities.

• **Defining Key Terms**

• **Transfer Price –** The actual price charged in transactions between related entities within a multinational enterprise group.

• **Arm's Length Price –** The price that would be agreed upon by independent, unrelated parties in an open market transaction.

• **Safe Harbour –** Circumstances where tax authorities accept the transfer price declared by the taxpayer, avoiding further scrutiny.

• By increasing the threshold, the CBDT seeks to provide relief to a larger number of taxpayers and promote ease of doing business, while maintaining a robust transfer pricing regime.

Environment

Karnataka's Elephant Soft-Release Plan

Karnataka will soft-release captured elephants into Bhadra Wildlife Sanctuary, aiming for their successful reintegration into the wild.

• **Bhadra Wildlife Sanctuary Overview -** Located in Chikkamagaluru and Shivamogga districts, Bhadra is a Project Tiger Reserve, established in 1951, known for its successful village relocation and diverse terrain.

• **Flora Diversity-** The sanctuary features Southern Moist Mixed Deciduous, Dry Deciduous, and Shola forests, housing species like Teak, Bamboo, Cinnamon, and Neelakurinji.

• **Fauna Richness -** Bhadra is home to diverse fauna, including tigers, elephants, over 250 bird species, various reptiles like King Cobras, and numerous butterfly species.

• **Monitoring and Gradual Release -** Elephants will be monitored here for months under veterinary care, with no human interaction, to facilitate their adaptation. Once adapted, they will be released into the sanctuary's wider population.

Science

Lyme Disease Breakthrough

Scientists have identified the BbLDH enzyme as critical for Borrelia burgdorferi, the Lyme disease bacterium, enhancing understanding of its survival and infectivity.

• **Lyme Disease Overview -**Is a bacterial infection caused by Borrelia burgdorferi, leading to potential complications in the skin, heart, brain, and joints.

• **Transmission Mechanism -** The disease is transmitted to humans through the bite of infected deer ticks (black-legged ticks), and not all tick bites result in Lyme disease.

• **Non-Transmission Routes -** Lyme disease does not spread between humans, from pets to humans, or through air, food, water, or insects like lice, mosquitoes, fleas, and flies.

• **Global Prevalence -** It is prevalent in wooded and grassy areas worldwide, particularly in North America, Europe, and parts of Asia, especially during warmer months.

• **Symptoms and Complications -** Typical symptoms include fever, headache, fatigue, and erythema migrans rash. Untreated, it can affect joints, the heart, and the nervous system.

• **Treatment and Cure -** Early antibiotic treatment usually cures Lyme disease, emphasizing the importance of prompt medical intervention.

Miscellaneous

New Pamban Rail Bridge Inauguration

16. *Narendra Modi will inaugurate the new Pamban rail bridge on April 6, 2025, coinciding with Ram Navami, enhancing connectivity to Rameswaram Island.*

• **Bridge Construction Details -** The bridge, built at a cost of Rs531 crore, will significantly improve railway infrastructure between Ramanathapuram and Rameswaram.

• **Prime Minister's Itinerary -** Modi’s visit includes the bridge inauguration, flagging off a new Tambaram-Rameswaram train, and addressing a public gathering in Rameswaram.

• **Old Bridge’s - Was India's first sea bridge, which opened in 1914.** Recently**,** Due to its deteriorated condition, the old Pamban rail bridge will be dismantled, with select parts preserved as heritage artifacts.

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