Factly Monthly

Compilation

2024

For UPSC CSE Prelims Exam

Index

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Subject: Polity and Nation

Cross-voting in Rajya Sabha elections

Why in the News?

The recent Rajya Sabha elections in Uttar Pradesh, Himachal Pradesh, and Karnataka saw MLAs from various parties engaging in cross-voting. This has sparked concerns regarding the integrity of the election process.

How are Rajya Sabha elections held?

1. Constitutional Provision: According to Article 80 of the Constitution, Rajya Sabha representatives from each State are indirectly elected by the elected members of their Legislative Assembly.

2. Historical background– Before 1998, the outcome of Rajya Sabha elections were usually a foregone conclusion, as the candidates were nominated by various parties in accordance to their strength in the Assembly. Hence, they used to be elected unopposed. However, the June 1998 elections in Maharashtra saw cross-voting, breaking this tradition.

Legal provisions and precedent for curbing cross voting

1. Open Ballot system:
a. To prevent MLAs from cross-voting, an amendment to Section 59 of **Representation of the People Act, 1951** was made in 2003. This amendment introduced open ballot voting in Rajya Sabha elections.
b. MLAs from political parties must display their ballot papers to their party's authorized agent. Failure to do so or showing it to anyone else will invalidate the vote. Independent MLAs cannot show their ballots to anyone.

2. Tenth Schedule:
a. It introduced in 1985.
b. This schedule states that if a member of a Parliament or State legislature voluntarily leaves their political party or votes against their party's instructions, they can be disqualified from the House. However it does not apply to Rajya Sabha elections

3. SC Court Rulings:
a. The Supreme Court in Kuldip Nayar versus Union of India (2006) upheld the system of open ballot for Rajya Sabha elections.
b. In the same case, the court also decided that a political party's elected MLA would not be disqualified under the Tenth Schedule for voting against their party candidate. They might face disciplinary action from their party at most.

Supreme Court overturns its verdict on Stay Order

Why in the News?

The Supreme Court recently overturned its decision in the Asian Resurfacing case. The Court stated that a Supreme Court bench in 2018 did not have the authority to establish a six-month time limit for lifting stay orders.

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What did the 2018 bench rule in the Asian Resurfacing case?

Background:
a. In 2018, a three-judge bench comprising Justices Adarsh Goel, Navin Sinha and Rohinton Nariman were deciding a batch of cases involving the **Prevention of Corruption Act**.
b. These cases had one thing in common: the respective High Courts had granted a stay at some point during the trial.
c. Stay orders are issued by courts to temporarily halt legal proceedings, protecting citizens' rights. A stay always postpones the trial, regardless of who benefits from it.

SC 2018 ruling in Asian Resurfacing case– To tackle the significant issue of delays in criminal trials, the Supreme Court ruled that interim stay orders from High Courts and Civil Courts will only last for six months. At the conclusion of this duration, they will be automatically revoked or "lifted".

Impact of 2018 ruling

This decision raised several questions as follows:

Question 1– Can the Supreme Court, under Article 142 of the Constitution (which empowers it to pass any order to ensure "complete justice"), order the automatic removal of all interim orders from High Courts that suspend proceedings of civil and criminal cases after a certain period has expired?

Question 2- Can the Supreme Court, under Article 142 of the Constitution, instruct the High Courts to resolve pending cases where interim stay orders on proceedings have been issued, on a daily basis and within a set timeframe?

Why was the 2018 ruling reversed?

1. Lacked authority to set a timeline– The court ruled that the Asian Resurfacing bench lacked the authority to establish a six-month deadline for lifting stay orders.

2. Defeat justice– The court stated that automatically lifting a stay order after six months would actually "defeat justice" by invalidating interim orders that had been legally issued without hearing the parties.

3. Only legislature have the power– The court mentioned that the six-month limit would be like creating laws from the bench, which is not allowed. Only the legislature can determine if certain cases should be resolved within a set period.

No immunity for MPs, MLAs in bribery cases: SC

Why in the News?

The Supreme Court recently ruled that parliamentary privilege or immunity would not shield legislators who accept bribes to vote or speak in Parliament or State Legislative Assemblies from criminal prosecution. The Supreme Court overruled its judgment in the JMM bribery case of 1998.

Background– In 1993, JMM leader Shibu Soren and some of his party MPs were accused of accepting bribes to vote against the **no-confidence motion** against the then P V Narasimha Rao government. In 1998, a five-judge Supreme Court bench, in its majority ruling, dismissed the case against the JMM MPs, citing immunity under Article 105(2).

What was the recent ruling by the Supreme Court?

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Figure 1Source- Hindustan Times

1. The court stated that legislators' freedom of speech and expression, along with their voting rights in the House, do not protect them from giving or taking bribes. Similarly, the immunities provided under Article 105 and 194 also do not shield them in such cases.

2. The act of bribery is considered complete when the legislator accepts the bribe. It doesn't matter if the legislator votes as agreed or doesn't vote at all.

Note– The reference came in an appeal filed by JMM leader Sita Soren, who was accused of taking a bribe to vote for a particular candidate in the 2012 Rajya Sabha elections.

What are the constitutional immunities for state legislature and parliament members?

1. Article 194(2) of the Constitution grants immunity to State Legislature members, while Article 105(2) provides the same protections to Parliament members.

2. Article 105 of the Constitution addresses the authority, privileges, and immunities of Parliament and its members.

3. Article 105(2) states that no Member of Parliament can be held accountable in court for statements made or votes cast in Parliament or its committees.

National Cooperative Database (NCD)

Why in the News?

Union Minister of Cooperation launched the National Cooperative Database (NCD) to foster a cooperative-centric economic model.

About National Cooperative Database (NCD):

Figure 2.Source- NCDC

1. **About:** It is a web-based digital dashboard wherein data of cooperative societies, including national/state federations, have been captured. It has collected or mapped information about 8 lakh cooperatives.

2. It aligns with vision of "Sahakar se Samriddhi".

3. It has been developed in collaboration with State Governments, National Federations, and stakeholders to foster a cooperative-centric economic model.

Citizenship Amendment Act (CAA) rules 2024 notified

Why in the News?

The Home Ministry has recently notified the Citizenship Amendment Act (CAA) rules, 2024. These rules enable the implementation of the Citizenship Amendment Act (CAA) passed by the Parliament in 2019.

What is Citizenship Amendment Act (2019): Key provisions?

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About– The objective of the Citizenship Amendment Act, 2019 is to modify the Citizenship Amendment Act of 1955. It provides Indian citizenship to particular categories of illegal migrants.

Eligible categories- It proposes that six minorities–Hindus, Sikhs, Buddhists, Jains, Parsis, and Christians from Afghanistan, Bangladesh, and Pakistan won't be considered illegal immigrants if they enter India without proper documents on or before December 31, 2014.

Objective– The main goal is to help non-Muslim migrants from India's neighboring Muslim-majority countries (Afghanistan, Pakistan, and Bangladesh) to obtain citizenship.

Residence requirement reduces– The amendment reduces the period of residency from 11 years to 5 years, for acquiring permanent citizenship through naturalization.

Exemption from criminal cases- Individuals belonging to specified communities are granted immunity from criminal prosecution under the Foreigners Act of 1946 and the Passport Act of 1920, provided they arrived in India on or before December 31, 2014.

Other Exceptions to the Act include: The provisions on citizenship for illegal migrants will not apply to two categories-
a. Regions protected by the '**Inner Line Permit**'.
b. Areas covered under the **Sixth Schedule** of the Constitution.

Online Process for applying

1. Empowered Committee– The citizenship application process will be conducted online, with an empowered committee overseeing the scrutiny of all applications through district-level committees.

2. Composition of empowered committee– Each state's empowered committee will be chaired by the Director of Census Operations and will comprise officers from the Intelligence Bureau, Post Master General, State or National Informatics Centre, along with a representative each from the Department of Home and Divisional Railway Manager as invitees.

3. The district-level committee will be headed by the Senior Superintendent or Superintendent of Post.

> **Documents required:**
> **a.** Birth certificates, rental documents, identification papers, licenses, and educational certificates issued by government authorities in Afghanistan, Pakistan, and Bangladesh.
>
> **b.** To qualify for citizenship under Section 6B of the CAA, applicants must show they entered India before December 31, 2014. They also need to provide documents like a passport copy, visa, Census enumerator slip, PAN card, electricity bill, or insurance policy. These documents must be issued by Indian authorities and remain valid even if expired.
>
> **c.** Applicants must provide an "eligibility certificate" from a respected local community institution confirming their membership in the Hindu, Sikh, Buddhist, Jain, Parsi, or Christian community.

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Uniform Code for Pharmaceutical Marketing Practices (UCPMP) 2024

Why in the News?

The government has recently issued the Uniform Code for Pharmaceutical Marketing Practices (UCPMP), 2024. It aims to regulate unethical practices in the pharmaceutical industry.

What are the key provisions of UCPMP 2024?

Figure 3.Source- The Print

1. Prohibits gifts– The code prohibits pharmaceutical companies, agents, distributors, wholesalers, or retailers from offering or providing gifts that benefit healthcare professionals or their family members personally.

2. Restriction on travelling facilities– The UCPMP 2024 limits providing travel and vacation benefits to healthcare professionals or their families, unless the individual is a speaker at an event.

3. Financial limitations– The code restricts financial benefits or perks from being offered, supplied, or promised to individuals qualified to prescribe or supply drugs by pharmaceutical companies or their representatives.

4. Ban on CME workshops abroad-The code prohibits companies from conducting continued medical education (CME) workshops in foreign countries.

5. Drugs promotion directive:
a. The UCPMP rules require drug promotion to adhere to marketing approval terms. The drugs must not be promoted before approval.
b. Claims of effectiveness of the drug must be backed by current evidence. Terms like 'safe' must not be used without qualification.
c. Additionally, drugs can't be labeled as 'new' if they've been available or promoted in India for over a year.

6. Rules violation & adherence directive:
a. Violations of the code will be handled by Ethics Committees for Pharma Marketing Practices (ECPMP) set up within each association to ensuring accountability.
b. The CEOs of pharmaceutical companies are responsible for following the code and ensuring compliance with UCPMP 2024 regulations.
c. Companies must submit annual self-declarations of adherence to the code, which will be posted on the association's website or the UCPMP portal of the Department of Pharmaceuticals.

Constitutional Provisions for Terms of State Assemblies and Lok Sabha

Why in the News?

Recently, the **Election Commission of India (ECI)** rescheduled the date of counting votes in two states, Sikkim and Arunachal Pradesh to June 2 from june 4. It was done after the realization that the term of both the Legislative Assemblies will expire on June 2.

What does the constitution say about terms of state Assemblies and Lok Sabha?

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1. Under the Constitution, the terms of both state Assemblies and Lok Sabha is for five years from the first sitting of the House. It can only be dissolved earlier under the various mechanisms given in the constitution, but cannot be extended further.

2. **Term of state Assemblies** is defined under Article 172(1) of the Indian Constitution. It states: "Every Legislative Assembly of every State, unless sooner dissolved, shall continue for five years from the date appointed for its first meeting and no longer. The expiration of the said period of five years shall operate as a dissolution of the Assembly".

3. The term of the state assembly may be extended by Parliament when there is a proclamation of Emergency. However, the extension cannot exceed one year at a time and once the Proclamation has ceased to operate, the extension cannot be given beyond a period of six months, in any case.

4. **Terms of Lok Sabha is defined** under Article 83(2). It states: "The House of the People, unless sooner dissolved, shall continue for five years from the date appointed for its first meeting and no longer. The expiration of the said period of five years shall operate as a dissolution of the House."

5. It means that the term of the Lok Sabha, unless dissolved, is five years from the date appointed for its first meeting.

6. However, while a proclamation of emergency is in operation, this period may be extended by Parliament. However, the extension cannot exceed one year at a time and once the Proclamation has ceased to operate, the extension cannot be given beyond a period of six months, in any case.

Cinematograph (Certification) Rules, 2024

Why in the News?

The Ministry of Information and Broadcasting has introduced new Cinematograph (Certification) Rules for 2024. These rules will replace the old rules from 1983.

These rules are based on the Cinematograph (Amendment) Act, 2023, which modified the Cinematograph Act, 1952.

About Cinematograph (Certification) Rules, 2024

Figure 4.Source- Hindustan Times

Aim– These rules aim to address film certification concerns. They have been updated to fit online certification processes, improving transparency and efficiency.

Key aspects of the new rules:

1. Age-based certification:

a. The UA category now offers sub-categories like UA 7+, UA 13+, and UA 16+ to aid parents in determining a film's suitability for their children.

b. The older certification categories—U (Universal), A (Adult Only), and S (for specific groups)—will remain unchanged.

c. These updates align with the recommendations of the Shyam Benegal committee from 2017.

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2. Reduced certification time-The new rules streamline film certification by going fully digital, with a provision for "priority screening" for urgent cases. This would enhance transparency and impartiality.

3. Increased representation for Women– The new rules mandate increased representation of women in the **Central Board of Film Certification (CBFC)** and Advisory Panels. It is specified that one-third of the Board members must be women.

4. Accessibility for disabled– Movies/feature films must incorporate accessibility features for certification to ensure inclusivity for disabled individuals.

5. Perpetual validity of CBFC certificates– CBFC certificates will have Perpetual validity, removing the previous 10-year limit. Recertification will only be needed for edited films aired on television.

6. Compliance Timeline– Films in more than one language must adhere to the rules within six months, while others have two years. From January 1, 2025, films submitted to events like the National Film Awards and International Film Festival must also follow the guidelines.

> **About Cinematograph (Amendment) Act, 2023**
> **1.** The Cinematograph (Amendment) Act of 2023, which amended the Cinematograph Act of 1952, was passed in 2023.
>
> **2.** It introduces stricter penalties for piracy. These include imprisonment ranging from three months to three years, as well as fines ranging from three lakh rupees to 5% of the audited gross production cost.

Subject: International Relations

Yaounde Declaration

Why in the News?

Health ministers from African nations grappling with the heaviest malaria burdens have recently signed the Yaounde Declaration. It aims to eradicate malaria-related fatalities.

What is Yaounde Declaration?

Figure 5.Source- DownToEarth

About– The health ministers of 11 African countries with the highest burden of malaria signed this declaration. They have committed to take accelerated action to end deaths from the malaria disease.

Signed at– Yaoundé conference (Yaoundé is Cameroon's capital), co-hosted by the **World Health Organization (WHO)** and the Government of Cameroon.

Participants– Ministers of Health, global malaria partners, funding agencies, scientists, civil society organizations, and other principal malaria stakeholders.

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Signatory countries– Burkina Faso, Cameroon, the Democratic Republic of the Congo, Ghana, Mali, Mozambique, Niger, Nigeria, Sudan, Uganda and Tanzania. These countries together accounts for more than 70 per cent of the global malaria burden.

Joint Logistics Over-the-Shore (JLOTS) Project

Why in the News?

The United States, as part of the Joint Logistics Over-the-Shore (JLOTS) project, is planning to construct a floating pier off the coast of Gaza to facilitate the delivery of humanitarian aid.

What is Joint Logistics Over-the-Shore (JLOTS)?
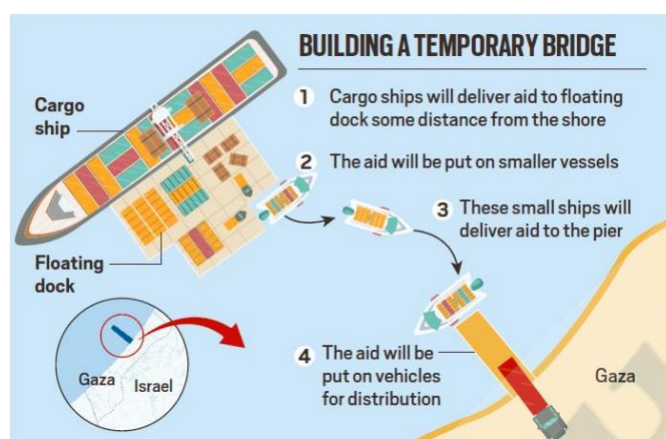
Figure 6.Source- The Indian Express

1. About– JLOTS is a military project by the US Department of Defense.

2. Objective– Its main objective is to enhance the military's capacity for logistics operations in regions where there is a lack of adequate fixed port facilities.

3. Operational features:
a. These operations involve teamwork among military branches. The navy transports and secures goods, while the army or other agencies handle tasks like building infrastructure and delivery.
b. JLOTS uses special equipment like floating causeways and barges to move cargo between ships and shore, even in challenging areas.

4. Significance– This is especially useful during humanitarian and disaster relief efforts when quick delivery of aid is essential. The US military has used JLOTS before in Kuwait, Somalia, Haiti, and Central America for disaster relief missions.

Washington's "ironclad commitment" to Philippines

Why in the News?

U.S. Secretary of State Antony Blinken underscored Washington's "ironclad commitment" to help the Philippines.

This commitment was made in the backdrop of recent clashes between Chinese and Filipino coast guards in the disputed South China Sea.

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About Washington's "ironclad commitment" under Mutual Defense Treaty

Figure 7.Source: The Washington Times

1. US's Ironclad Commitment to the Philippines is backed by the Mutual Defense Treaty(MDT). MDT was signed between the Republic of the Philippines and the United States of America, in 1951.

2) The MDT, puts the obligation on both sides to come to aid of each other's defense in case an external party attacks the Philippines or the US.

3) Therefore, mutual defense commitments of US under Article IV of the MDT would be invoked, in case there is any armed attack on Philippine. It includes attack on armed forces, aircraft and public vessels, including the Coast Guard, anywhere in the South China Sea.

4) US's "ironclad commitment" also extends to NATO Allies under Article 5 of the Washington Treaty.

India as co-chair of Digital Innovation Board

Why in the news?

Dr Neeraj Mittal was unanimously elected as co-chair of the Digital Innovation Board of International Telecommunication Union. It is formed under the aegis of Innovation and Entrepreneurship Alliance for Digital Development.

About Innovation and Entrepreneurship Alliance for Digital Development

Figure 8.Source-PIB

Started by– International Telecommunication Union (ITU)

Objective– To respond to significant unmet needs of ITU Membership in the area of innovation, as articulated in the Kigali Action Plan adopted at the World Telecommunication Development Conference 2022 (WTDC-22) and the Outcomes of the ITU Plenipotentiary Conference 2022 (PP-22).

What are the main vehicles of the alliance?

The Alliance has three main vehicles: –

1) **Digital Transformation Lab**

2) **Network of Acceleration Centres**-ITU has selected 17 organizations from around the world to host Network of Acceleration Centres with the Global Innovation Centre at ITU Area Office and Innovation Centre, New Delhi. It aims to coordinate the efforts of Network Acceleration centres around the globe.

3) **Digital Innovation Board**-It is established to provide strategic guidance, expertise and advocacy regarding its mission of building critical local enablers and fostering innovation and entrepreneurship in digital development.
The Digital Innovation Board comprises Ministers and Vice Ministers of Telecom/ICT of 23 Member Countries of ITU spanning Asia, Europe, Africa, North and South America.

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2nd Employment Working Group (EWG)

Why in the News?

Recently, the 2nd Employment Working Group (EWG) Meeting held under the Brazilian Presidency in Brasilia.

About 2nd Employment Working Group (EWG)

1. It was held under the Brazilian Presidency in Brasilia.

2. India is co-chairing the 2nd EWG meeting, along with Brazil and South Africa.

3. The G20 EWG's mandate is to address labour, employment and social issues for strong, sustainable, balanced and job-rich growth for all.

4. The focus areas for the 2nd EWG meeting is on:

(i) creating quality employment and promoting decent labor

(ii) addressing a just transition amidst digital and energy transformations

(iii) leveraging technologies to enhance the quality of life for all

Figure 9.Source: DDNEWS

(iv) emphasis on gender equity and promoting diversity in the world of employment for inclusivity, driving innovation and growth.

5. The Indian delegation emphasized the need for:

(i) gender equality in the workplace and beyond

(ii) steps taken for migrant workers

(iii) promoting reemployment of senior citizens

(iv) participation in the work force of the differently abled and the marginalised.

Subject: Indian Economy

Non-lapsable defence modernisation fund

Why in the News?

The government has abandoned the proposal to establish a Non-lapsable Defense Modernization Fund, citing drawbacks related to its impact on parliamentary scrutiny and accountability.

About Non-lapsable defence modernisation fund

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Background– The **15th Finance Commission** has proposed the establishment of a dedicated non-lapsable Modernisation Fund for Defence and Internal Security (MFDIS). The idea behind is to address the disparity between projected budget needs and the allocation for defense and internal security.

In 2021, the government placed an action-taken report in Parliament alongside the Commission's report. The government mentioned that it has "in-principle" agreed to create such a fund in the Public Account of India.

What is the need for Non-Lapsable Funds?

1. In India, the defense budget is assigned annually. At the close of each fiscal year, any remaining funds are reverted to the government's **consolidated fund**.

2. Consequently, the defense services miss the chance to utilize these allocated funds for unforeseen needs or future requirements. Establishing a Non-Lapsable Defense Modernization Fund (DMF) offers a solution to this challenge.

3. Once operational, the DMF would allow the three services to keep any unspent budget allocation beyond the fiscal year's end.

Why did the government abandon this proposal?

1. Traditionally, only funds raised through cesses for specific purposes are non-lapsable.

2. Apart from items funded through a cess, deferring today's allocations with the intention of using them later contradicts the fundamental principles of parliamentary financial accountability.

3. The government says it is working on a separate plan to explore a special arrangement for establishing a "Non-lapsable Defence Modernisation Fund."

SEBI Index Providers Regulations, 2024

Why in the News?

The Securities and Exchange Board of India (SEBI), in its latest regulations, has mandated index providers overseeing "significant indices" linked to Indian securities to register with the SEBI. This measure aims to improve transparency in the governance of financial benchmarks indices.

What do the SEBI Index Providers Regulations of 2024 say?

STRATEGIC SHIFT
- The global index providers may not have to register with Sebi unless their indices are used as benchmarks by domestic asset managers with large corpus
- Sebi has excluded indices that are for exclusive use in a foreign jurisdiction
- Benchmarks regulated by the Reserve Bank of India are also excluded from these regulations
- The RBI issued a framework in December mandating index providers that compile indices based on domestic debt to register with it
- Industry players said the NSE indices, and Asia index will have to register with Sebi

Figure 10.Source- Business Standard

1. The regulations necessitate index providers such as NSE Indices and Asia Index (AIPL) to register with SEBI. Additionally, they must publicly disclose their methodology documents and comply with a code of conduct.

2. Global index providers like MSCI, Nasdaq, and FTSE Russell might be exempted from registration requirements unless their indices are significantly utilized by domestic asset managers.

What are Indices?

1. Indices are statistical tools employed to monitor the

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performance of a collection of assets or securities within a specific market.

2. Indices are composed of stocks, bonds, commodities, or other financial assets, allowing investors to track changes in different sectors or the overall market.

3. Examples– Sensex and Nifty 200 in India, and S&P 500, Dow Jones Industrial Average, and NASDAQ Composite in the United States.

Private Placement

Why in the News?

The Securities and Exchange Board of India (SEBI) has recently decided to repeal certain circulars that provided relaxation for the allotment of securities through the private placement route.

What is Private Placement?

1. About– It is the sale of stock shares or bonds to selected investors and institutions rather than being offered publicly on the open market.

2. Investors attracted– Private placement programs invite investors like wealthy individuals, banks, mutual funds, insurance companies, and pension funds.

3. Benefit:
a. A benefit of private placement is its minimal regulatory demands.
b. Through private placements, companies can maintain closer investor relationships, negotiate flexible terms, and possibly retain more control over their direction and growth strategies.

Note– Under the Companies Act, 1956, issuing securities to 49 people was seen as private placement. This limit was raised to 200 under the Companies Act, 2013.

4. Types of of private placements– Preferential allotment and qualified institutional placement.

Preferential allotment:

1. About– This method involves a company issuing new shares to a select group of existing shareholders or specific investors, usually at a price lower than the current market price.

2. Purpose– This method is often used when a company aims to reward or retain existing shareholders, like promoters, by offering them the chance to buy more shares.

3. Regulation– Preferential allotment in India is regulated by SEBI regulations and the Companies Act. The company needs permission from its shareholders to proceed with preferential allotment.

Qualified Institutional Placement (QIP):

1. About– QIP is a private placement option for listed companies only. With QIP, a listed company can issue shares or securities to qualified institutional buyers (QIBs), like mutual funds, banks, insurance companies, and foreign institutional investors, without going public.

2. Purpose– Companies use QIP to quickly and efficiently raise capital from institutional investors for various purposes such as expansion, debt reduction, or other corporate needs.

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3. Regulation– SEBI has set guidelines for QIP issuances in India.

Patent Rules 2024

Why in the News?

Recently, the Patent Rules, 2024 has been officially notified.

About Patents Rules, 2024

1. **About:** Patent Rules, 2024 marked a significant milestone in the journey towards fostering innovation and economic development.

a) These rules introduce several provisions aimed at simplifying the process of obtaining and managing patents to facilitate a conducive environment for inventors and creators.

b) It is to accelerate economic development of the nation through science and technology to fulfil the Viksit Bharat Sankalp.

Note: A patent is a type of intellectual property that gives its owner the legal right to exclude others from making, using, or selling an invention for a limited period of time in exchange for publishing an enabling disclosure of the invention.

2. **Salient Features:** Some salient features of the revamped Rules are as follows:

a) **Introduction of Certificate of Inventorship:** A new 'Certificate of Inventorship' has been introduced to acknowledge the contribution of inventors in the patented invention.

b) **Incorporation of Form 31:** The streamlined provision for accessing Grace period benefits under Section 31 is facilitated through the introduction of new forms, specifically Form 31.

c) **Reduction in Time frame:** The time limit for submitting foreign application filing details in Form 8 has been adjusted from six months post-filing to three months after the issuance of the first examination report.

d) **Decreased Time Restriction:** Due to rapid technological advancements, the timeframe for filing a request for examination has been reduced from 48 months to 31 months, counted from either the priority date of the application or the date of application filing, whichever comes earlier.

e) **Extension in Time Limit:** Provision to extend time limit and condone delay in filing has been further simplified and made more explicit to ease in practice.

The time for doing any act/proceeding may be extended any number of times up to six months by a request in prescribed manner.

f) **Reduction in Renewal Fees:** Renewal fee has been reduced by 10% if paid in advance through electronic mode for a period of at least 4 years.

g) **Reduced Frequency of filing patents:** Patent statements in Form 27 are now required every three fiscal years instead of annually. Additionally, a provision allowing a three-month delay in filing upon request has been added.

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i) **Streamlining of Pre-Grant representation:** The process for filing and handling pre-grant representations through opposition under section 25(1) has been enhanced and clarified. This includes establishing methods for disposing of representations and setting filing fees.

Kisan Credit Card (KCC) Fisheries Scheme

Why in the News?

The Department of Fisheries has included the Kisan Credit Card (KCC) Fisheries scheme on the JanSamarth Portal to provide better access to credit for fishers, fish farmers, and stakeholders across the country.

> **JanSamarth Portal**
> **1.** It is an innovative online platform that directly links lenders with beneficiaries.
>
> **2.** Citizens can access loans through 13 Central government schemes across four loan categories.

What is KCC Fisheries Scheme?

1. About– In 2018-19, the Kisan Credit Card (KCC) facility was extended to fishers and fish farmers to support their working capital needs.

2. Coverage– The Scheme covers different categories of farmers, such as individuals, joint borrowers, Joint Liability Groups, and Self Help Groups.

3. Subsidy– It provides an annual interest subsidy of 2%, along with an extra subsidy of 3% for timely repayment.

About Kisan Credit Cards (KCC) Scheme

Figure 11.Source- Financial Express

1. Launched– The KCC scheme started in 1998 to offer timely credit to farmers for farming and related needs. It was initiated based on the recommendation of R.V. Gupta committee.

2. Objective– KCC aims to fulfill short-term credit needs for farming, post-harvest costs, marketing, consumption, farm asset maintenance, and agriculture-related investments.

3. Implementing Entities: Commercial Banks, Regional Rural Banks (RRBs), Small Finance Banks, and Cooperatives participate in executing the scheme.

4. Features:
a. KCC offers an ATM-enabled RuPay debit card, streamlined processes, and inherent cost escalation.
b. The government helps farmers by reducing interest rates and offering rewards for prompt loan repayment to make agricultural loans more affordable. Farmers must link their Aadhaar to avail themselves of interest rate reductions.

5. Expansion of the scheme– The scheme expanded in 2004 to cover investment credit needs for farmers in various activities beyond farming. In 2018-19, it was extended to include fisheries and animal husbandry farmers.

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Reverse Flipping

Why in the News?

Startups such as Pine Labs, Zepto, and Meesho are the latest new-age companies looking to move headquarters to India.

About reverse flipping

1. **About:** Reverse flipping refers to the phenomenon where international startups relocate their headquarters to India and subsequently go public on Indian stock exchanges.

2**. Driving factors:** It is driven by various factors including India's thriving economy, expansive market potential, robust venture capital ecosystem, favourable tax frameworks, strong intellectual property protection, educated workforce, and supportive governmental policies.

3. **Reason:** Companies opt for reverse flipping due to the ease of accessing capital from private equity and venture capital firms, regulatory changes regarding round-tripping, and the increasing maturity of India's capital markets.

4. **Measures to accelerate the process:** The **Economic Survey 2022-23** suggested measures to expedite the process, such as simplifying procedures for tax incentives, taxation of Employee Stock Ownership Plans (ESOPs), capital movements, reducing tax complexities, among others.

About Flipping

1. About: Flipping is when an Indian company transforms into a 100% subsidiary of a foreign entity, after it has moved its headquarters overseas, including a transfer of its intellectual property (IP) and others.

2. **Impact on Indian economy:**

a. **Brain drain of entrepreneurial talent from India:** Young, skilled, and innovative founders relocate to overseas jurisdictions resulting in loss of human capital and stalling of innovation and technological advancements within the country.

b. **It results in value creation in foreign jurisdictions rather than in India:** Home-grown innovative ideas and disruptive technologies contribute to the startup ecosystem and economic growth of other countries.

c. It also results in the loss of Intellectual Property and Tax Revenue for the country

Price stabilization fund

Why in the News?

Recently, the government has approved inclusion of wheat and rice under its price stabilization fund (PSF).

About Price stabilization fund

1. **About:** The Price Stabilization Fund (PSF) was set up in 2014-15 under the Department of Agriculture, Cooperation & Famers Welfare (DAC&FW). The PSF scheme was transferred to the Department of Consumer Affairs (DOCA) in 2016.

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2. **Regulation of the fund:** The fund management is centrally managed by a Price Stabilisation Fund Management Committee (PSFMC) that approves all State Government's and Central Agencies' proposals.

The Small Farmers Agribusiness Consortium (SFAC) maintains the PSF as a central corpus fund.

3. **Objective:** The fund is aimed at increasing or decreasing prices of selected commodities by distributing or procuring the commodity to stabilize the price in a range. The fund is usually used for activities aimed at bringing down/up the high/low prices.

4. **Function:** a. It helps to regulate the price volatility of important agri-horticultural commodities like onion, potatoes and pulses were also added subsequently.

b. The PSF is utilized for granting interest-free advance of working capital to Central Agencies, State/UT Governments/Agencies to undertake market intervention operations.

c. Apart from domestic procurement from farmers/wholesale mandis, import may also be undertaken with support from the Fund.

d. Under the PSF scheme, interest-free loans are extended to State Governments/Union Territories (UTs) and Central Agencies to cover their working capital and related expenses incurred in the procurement and distribution of these commodities.

Difference between the current and capital account

Why in the News?

Recently, RBI stated that current account deficit narrows to 1.2 % of GDP at $10.5 billion in Oct-Dec. In the second quarter of FY2024, the country CAD stood at $11.4 billion, or 1.3 per cent GDP.

Difference between the current and capital account

About Current Account:

1) It reflects the net income of a country.

2) It records transactions related to trade in goods and services, investment income, and unilateral transfers.

3) Its components include the balance of trade (exports and imports of goods), services, net investment income, and net cash transfers.

4) In case of Current account, a negative balance indicates higher imports than exports, while a positive balance shows higher exports.

5) Current account deficit is the difference between exports and imports of goods and services. It is a key indicator of the country's external sector.

About Capital Account:

1) It reflects the net change in ownership of national assets.

2) It deals with the sources and application of capital, such as foreign direct investment, portfolio investment, and government loans.

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3) It records the trading of foreign assets and liabilities, including investments, loans, and banking capital movements.

4) In case of capital account, a surplus indicates an inflow of money into the country, while a deficit indicates capital moving out of the country.

Meme coins

Why in the News?

Recently, meme coins have gained significant popularity in the digital currency space.

About Meme Coins

THE FLIP SIDE
- Memecoins lack in any real underlying value
- They are subject to extreme changes in value over short periods, driven by the current buzz surrounding the token
- This makes them risky investments
- Companies such as Tesla and AMC have shown openness to accepting memecoins as currency
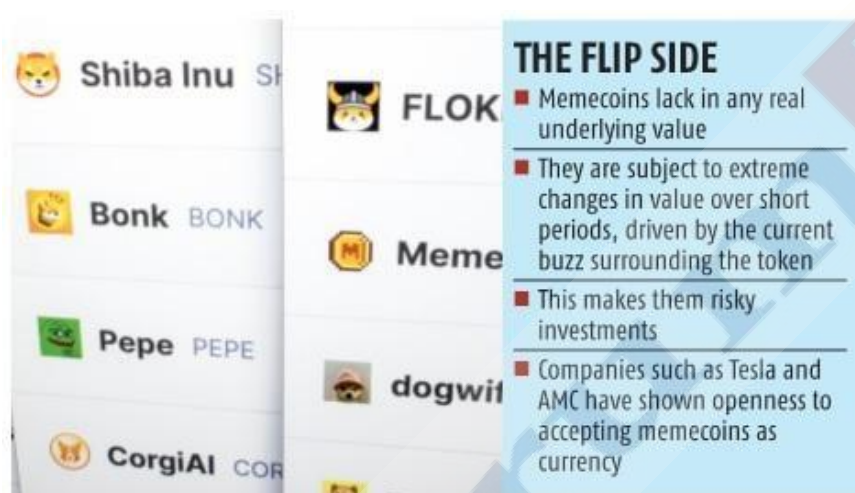
Figure 12.Source: BS

1. **About:** Meme coins are digital currencies created as a form of satire or humorous tribute to the internet culture. They are also known as 'memetic tokens' or 'community coins'.

2. Features:

a) Meme coins have branding and names inspired by internet memes, jokes, or phenomena. They are humorous and designed for virality, often featuring quirky logos to appeal to the widespread online community.

b) The nature of these coins are highly volatile as they are driven by the current buzz surrounding the token.

c) They typically have a massive or uncapped supply, leading to very low values per token.

d) These coins leverage blockchain technology, often utilising smart contracts on platforms like Ethereum and Solana.

e) It is easy to create a meme coin as compared to traditional cryptocurrencies. Virtually anyone can launch a meme coin with minimal technical expertise and resources.

3. Some of the famous meme coins are Dogecoin, Shiba inu, Retik Finance.

4. Risks associated with meme coins:

a) The prices of meme coins can experience rapid fluctuations, making them risky investments.

b) These coins are primarily driven by speculation and community engagement, lacking fundamental value or unique use cases.

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India Employment Report 2024

Why in the News?

The International Labour Organisation (ILO) and the Institute of Human Development (IHD) have jointly published a report titled "India Employment Report 2024".

About India Employment Report 2024

1. **Prepared by –** the Institute for Human Development in collaboration with the International Labour Organization (ILO).

2. It highlights the challenges of youth employment within India's evolving economic, labor market, educational, and skills landscapes.

3. This report has used the data analysis from the National Sample Surveys and the Periodic Labour Force Surveys between 2000 and 2022.

Key Findings of the report:
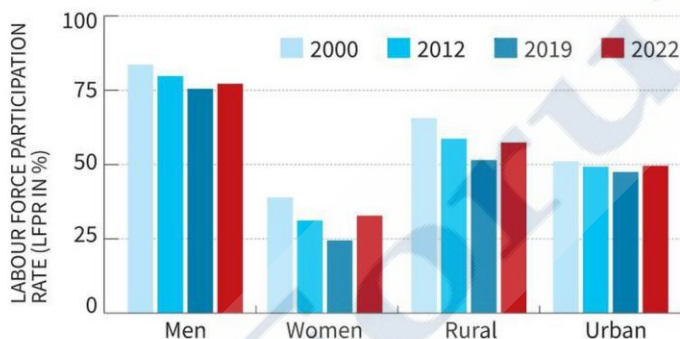
Figure 13.SOURCE: THE HINDU

a) There has been an increase in female labor market participation rates since 2019, especially in rural areas.

b) There has been also a gradual shift in the workforce from agricultural to non-farm sectors.

c) There has been predominance of self-employment and casual employment, with nearly 82% of workers in the informal sector.

d) A modest rise in the wages of casual laborers between 2012 and 2022 has been observed while real wages for regular workers have stagnated or declined.

e) India is expected to have a migration rate of around 40 per cent in 2030 and will have an urban population of around 607 million.

Challenges highlighted by the report:

1. Almost 90% of workers remain engaged in informal work.

2. There has been a rise in contractualisation. There is only a small percentage of regular workers covered by long-term contracts. The share of regular work increased steadily after 2000 which declined after 2018.

3. There are widespread livelihood insecurities with only a small percentage being covered with social protection measures, precisely in the non-agriculture, organized sector.

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4. India's large young workforce is a demographic dividend, but they don't appear to have the skills to deliver with 75% of youth unable to send emails with attachments, 60% unable to copy and paste files, and 90% unable to put a mathematical formula into a spreadsheet.

Measures to address these challenges:

1. Promoting job creation.
2. Enhancing employment quality.
3. Tackling labor market inequalities.
4. Strengthening skills and active labor market policies.
5. Bridging knowledge gaps regarding labor market trends and youth employment.

Subject: Science & Technolog

Roen olmi mushroom

Why in the News?

Researchers in Goa have claimed to have synthesized gold nanoparticles from the Roen olmi mushroom. It is a wild mushroom species that is widely consumed as a delicacy in the coastal state.

What is Roen olmi mushroom?

Figure 14.Source- Times of India

1. About:
a. It is a mushroom of the Termitomyces species.
b. It grows on termite hills and is called 'roen olmi' in Goa.
c. It is a wild mushroom loved by Goans and eaten during the monsoons.

2. Association with Termites– These mushrooms rely solely on their association with termites for growth and cannot exist independently.
a. Termites provide mushrooms the organic material they need to grow.

b. Termites eat them to obtain enzymes and nitrogen.

3. Habitat– It is found only in the Western Ghats, where the dense forests and high humidity create perfect breeding conditions

4. Significance– It is crucial as a strong decomposing fungus in forests and grasslands, turning 50% of dead plant material into nutrient-rich soil.

5. Concern– It's over exploitation can cause outbreak of new forest diseases such as **Kyasanur Forest Disease (KFD)**

Termitomyces species

1. All Termitomyces species are edible and valued for their texture, flavour, nutrients, and health benefits.

2. They have a variety of beneficial antioxidant and antimicrobial properties.

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Other types of Mushrooms in Goa

Local Name	Name derived from their characteristics
Khut olmi	Shape- Long stem
Fugo olmi	Balloon-shaped
Tamdi olmi	Red colour
Shith olmi	Fruiting season- winter

Haemophilia A

Why in the News?

Recently, India has conducted the first human clinical trial of gene therapy for 'haemophilia A' at Christian Medical College – Vellore.

What is Haemophilia A?
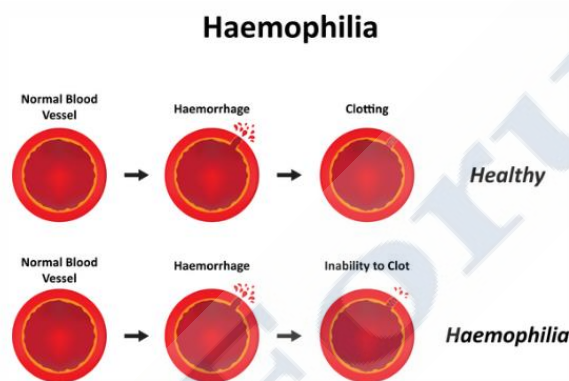
Figure 15.Source- Medicineplus

1. About– It is a genetic bleeding disorder caused by a deficiency in clotting factor VIII (blood-clotting protein), which is necessary for blood clotting.

2. Sex-linked:
a. It is a sex-linked disorder determined by the X and Y chromosomes. The gene for hemophilia is found on the X chromosome.
b. Hemophilia is much more common in males than in females.

3. Symptoms– Prolonged bleeding after injuries, surgeries, or spontaneous bleeding into muscles and joints.

4. Treatment:
a. It includes replacement therapy, where clotting factor concentrates are infused into the bloodstream to assist blood clotting.
b. Other treatments may involve medications to encourage clotting or surgery to mend bleeding-related damage.

> **Most common types of Hemophilia :**
> **1.** Hemophilia A (Classic Hemophilia)– This type is caused by a lack or decrease of clotting factor VIII.
> **2.** Hemophilia B (Christmas Disease)– This type is caused by a lack or decrease of clotting factor IX.

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India's first indigenously developed hydrogen fuel cell ferry

Why in the News?

Prime Minster recently launched India's first indigenously developed hydrogen fuel cell ferry. It was manufactured by the Cochin Shipyard Limited (CSL) under the Harit Nauka initiative.

What are its key features?

Figure 16.Source- The Indian Express

1. Design– It is a 24-meter catamaran which can accommodate 50 people in its air-conditioned passenger area. The accommodation is made of high-quality fiberglass reinforced plastic, resembling metro train coaches.

2. Propulsion– This boat uses a 50-kilowatt PEM (proton-exchange membrane) fuel cell along with Lithium-Ion Phosphate batteries. PEM fuel cells have the advantage of quickly adjusting their output to match power demands.

3. Energy Source– This boat has five hydrogen cylinders that hold 40kg of hydrogen, providing support for eight hours of operations. Additionally, the vessel is equipped with a 3-kilowatt solar panel.

Note– A hydrogen fuel cell creates electricity using the chemical energy in hydrogen and only emits pure water, without releasing pollutants.

4. Indigenous components– CSL developed the vessel automation system and power management system. The hydrogen fuel cell system was developed by KPIT Technologies, Pune, in collaboration with the Council of Scientific and Industrial Research Labs.

5. Significance:
a. Environment Friendly– It produces zero emissions or noise, and it is energy-efficient. It will also make urban mobility smooth and easy.
b. Low maintenance cost– Since it has no moving parts, the ferry needs less maintenance than combustion vessels.

> **Harit Nauka Initiative**:
> **1.** In January 2024, the shipping ministry unveiled the Harit Nauka guidelines for inland vessels.
>
> **2.** According to the guidelines, all states must aim to use green fuels for 50% of inland waterways passenger fleets within the next decade and 100% by 2045.
>
> **3.** This aims to cut greenhouse gas emissions according to the Maritime Amrit Kaal Vision 2047.

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Vikramadtiya Vedic Clock

Why in the News?

The Vikramadtiya Vedic Clock which is mounted on an 85-foot tower at Jantar Mantar in Ujjain, was inaugurated by the Prime Minister in a recent ceremony.

About Vikramaditya Vedic Clock

Figure 17.Source- Live mint

1. About– The 'Vedic Clock' is the world's first timepiece engineered to display time based on the ancient Indian traditional Panchang (time calculation system).

2. Developed by– Lucknow-based Sanstha Arohan

3. Features:
a. It offers details on planetary positions, Muhurat, astrological computations, and forecasts.
b. It also displays Indian Standard Time (IST) and Greenwich Mean Time (GMT).

c. It can be connected to the internet and offers numerous features through a mobile app named after the clock.

Note– Greenwich Mean Time (GMT) is the average solar time at the Prime Meridian, located at 0 degrees longitude in Greenwich, London. The Shepherd Gate Clock at the Royal Observatory in Greenwich always displays GMT.

4. Operational Mechanism– The clock will measure time between two sunrises.
a. The time span between the two sunrises will be split into 30 segments, with each hour comprising 48 minutes, according to ISD.
b. The measurement will begin at 0:00, coinciding with sunrise, and will continue for 30 hours (where each hour equals 48 minutes).

Why was Ujjain chosen for its establishment?

1. Ujjain has a long-standing heritage in timekeeping, spanning centuries. Ujjain has played a crucial role in establishing India's time zones and differences.

2. Ujjain is situated precisely at the intersection point of the zero meridian and the Tropic of Cancer.

3. Before the adoption of the 82.5E longitude for IST, Ujjain (75.78E) was regarded as India's time meridian.

4. The Vikrami Panchang and Vikram Samvat calendars are also released from Ujjain, making it the perfect location for the Vedic Clock.

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MethaneSAT

Why in the News?

MethaneSAT, a satellite designed to track and measure methane emissions globally, was launched aboard a SpaceX Falcon9 rocket from California.

What is MethaneSAT?
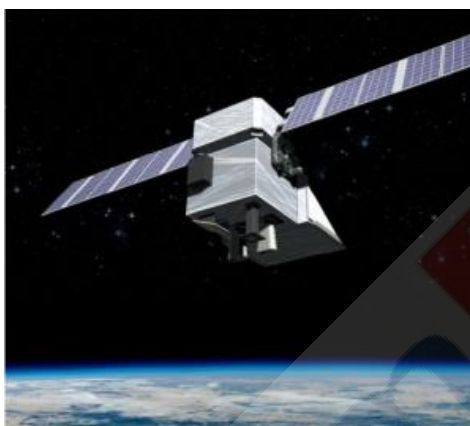
Source- eoPortal

Aspect	Details
About	It is an Earth observation satellite designed to monitor and study global methane emissions to aid in combating climate change.
Launch date	March 4, 2024
Agencies Involved	The Environmental Defense Fund (EDF), Harvard University, the Smithsonian Astrophysical Observatory, and the New Zealand Space Agency.
Function	**1.** MethaneSAT will make 15 orbits around the Earth each day, observing the activities of the oil and gas industry. **2.** It will generate extensive data to indicate "where methane originates, who is accountable, and whether emissions are increasing or decreasing over time." **3.** The data collected by MethaneSAT will be freely available to the public in almost real-time.
Features	**1.** The satellite, equipped with a high-resolution infrared sensor and a spectrometer, which will help fill important data gaps. **2.** It can detect changes in methane levels as small as three parts per billion in the atmosphere, allowing it to identify smaller sources of emissions compared to previous satellites. **3.** MethaneSAT also boasts a broad camera perspective, covering approximately 200 km by 200 km, enabling it to detect larger emitters known as "super emitters".
Data Analysis	The data collected will be analyzed using cloud computing and AI technology developed by Google, which is a mission partner. This data will be publicly accessible through Google's Earth Engine platform.

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Why is it significant?

1. The launch of MethaneSAT coincides with a time when the world is adopting stricter methane management policies.

2. Over 150 countries signed the **Global Methane Pledge** in 2021, aiming to reduce their combined methane emissions by at least 30% from 2020 levels by 2030.

3. Additionally, at **COP 28**, more than 50 companies pledged to significantly reduce methane emissions and routine flaring. MethaneSAT will support these efforts by assisting in achieving these targets.

India's second spaceport at Kulasekharapattanam (TN)

Why in the news?

Prime Minister Narendra Modi laid the foundation stone for the country's second spaceport at Kulasekarapattinam in in Tuticorin district.

About India's second spaceport
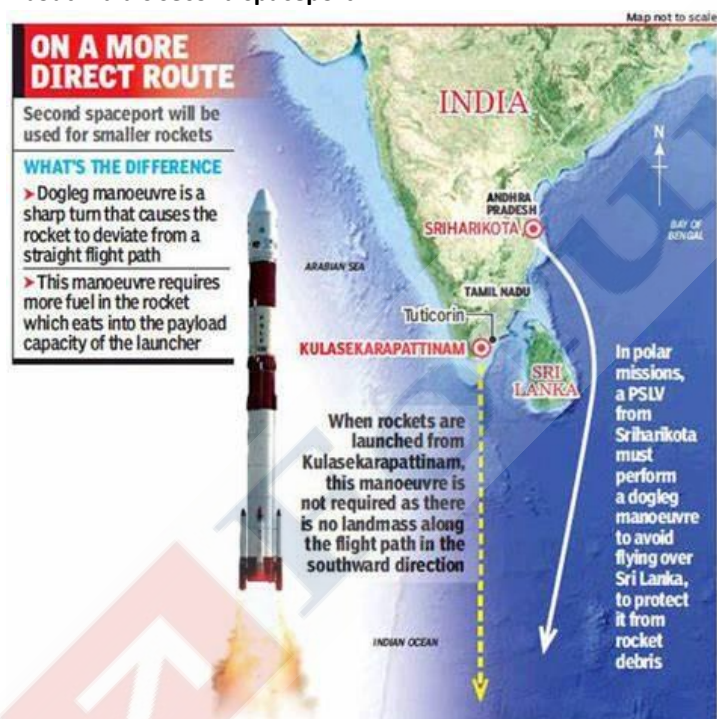
Figure 18.Source- Defenceforum.india

1. **About:** A spaceport or cosmodrome is a site for launching or receiving spacecraft, by analogy to a seaport for ships or an airport for aircraft.

2. **Location:** India's second spaceport is being established in Kulasekarapattinam, a coastal village in the Thoothukudi district of Tamil Nadu.

Note: Kulasekharapatnam situated in the Thoothukudi district, is an ancient port town dating back to the 1st century AD.

3. The new spaceport is dedicated to Small Satellite Launch Vehicles (SSLVs) developed by the private sector.

4. Indian Space Research Organization launched a Rohini sounding rocket from a mobile launch pad to mark the beginning of work at the site.

Reasons why launching sites are generally located on the Eastern Coast:

1. The eastern coast location offers several benefits for rocket launches:

a. Fuel Savings: Launching rockets from the eastern coast harnesses Earth's rotation, granting them initial velocity and reducing fuel requirements for orbit.

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b. Equatorial Position: The spaceport's proximity to the Equator further enhances launch efficiency. Rockets launched closer to the Equator receive an additional boost from the Earth's rotational speed, making it easier to reach orbit.

Dry ice

Why in the news?

Recently, Dry ice mistakenly provided at a party in a Gurugram restaurant caused severe injuries to people's mouths and food pipes, leading to hospitalization.

About Dry Ice

Figure 19.Source- DownToEarth

1. About: Dry ice is solid carbon dioxide (CO_2) formed by compressing and cooling carbon dioxide gas.

2. Difference between regular ice and dry ice: Unlike regular ice, which melts into liquid water, dry ice undergoes sublimation, transitioning directly from a solid to a gas without going through a liquid phase. This sublimation process releases large volumes of CO_2 gas.

3. Applications:

i) Dry Ice is commonly used as a cooling agent for food products like ice cream, frozen desserts etc.

ii) Dry ice is also used for applications such as preservation and for creating special effects like fog or smoke.

iii) It also finds use in industrial cleaning processes like dry ice blasting.

4. Hazardous nature:
a. Dry ice can be hazardous if ingested because dry ice sublimates rapidly and when it comes in contact with moisture in the mouth or digestive tract it releases CO_2 gas which could pose a danger of breathlessness (hypercapnia).
b. It may also cause burns, bloating, vomiting, and even life-threatening complications like stomach or intestinal perforation.

Frontier Technology Labs (FTLs)

Why in the News?

Atal Innovation Mission (AIM) under NITI Aayog and Meta have collaborated to set up Frontier Technology Labs (FTLs) in schools deemed strategically important.

This partnership aims to make frontier technologies accessible to everyone and encourage innovation among students.

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What are Frontier Technology Labs (FTLs)?

Figure 20.Source- India Today

1. About:
a. The FTL is an advanced version of the Atal Tinkering Lab, featuring cutting-edge infrastructure that includes all elements found within the Tinkering Lab.
b. It enables students to innovate using technologies such as Artificial Intelligence, Augmented & Virtual Reality, Blockchain, Cybersecurity, Robotics, 3D Printing, and Internet of Things.

2. Component of Meta's Education to Entrepreneurship initiative– The FTLs are a component of **Meta's Education to Entrepreneurship program**, which started in September 2023.This initiative aims to connect students, youth, workers, and micro-entrepreneurs with advanced technologies, bringing digital skills to the grassroots level.

3. Funding– Meta will finance the FTLs

4. Knowledge Partner– **Atal Innovation Mission**

What are frontier technologies?

1. About-It is defined as potentially disruptive technology that can address large-scale challenges. It is an intersection where radical forward-thinking and real-world implementation meet.

2. Examples– AI, robotics, 3D printing, Internet of Things among other

Penicillin G manufacturing to restart in India

Why in the news?

India has decided to resume the manufacturing of the common antibiotic Penicillin G after nearly 3 decades.

About Penicillin G

Figure 21.Source-Adobe Stock

1) It is a medication used to manage and treat a wide range of infections. This is very effective against gram-positive and gram-negative cocci bacterial infections. For Ex- Susceptible bacterial infections in the stomach.

2) It is the active pharmaceutical ingredient (API) used in manufacturing several common antibiotics.

About Active Pharmaceutical Ingredients

Description– These are the active ingredients contained in a medicine. It is that part of the medicine that produces the intended therapeutic effects. For example, in a painkiller, the active ingredient relieves pain.

Quantity– A Small amount of the API is required to produce the effect, and so the medicine contains only the required amount of the API.

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Largest production– China is one of the largest producers of Key Starting Material (KSM) and APIs in the world.

Why did penicillin manufacturing stop in India?

1) It was phased out of production because of subsidy-driven cheaper Chinese products flooding the market.

2) The Drug Prices Control Order ensured that more companies went for cheaper imported products. The Drug Prices Control Order regulates the price of essential medicines in India.

ISRO to Provide Internet Services in 80 Remote Tribal Villages

What is the News?

The Ministry of Tribal Affairs is planning to collaborate with ISRO to deploy V-SAT stations on a pilot basis for around 80 tribal villages to bring internet services to these geographically remote and challenging areas that have long been without connectivity.

About V-SAT
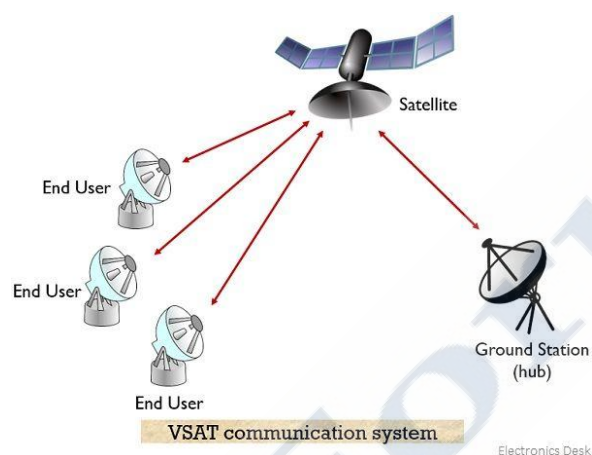
Figure 22.Source- electronicsdesk.com

1. About: A Very Small Aperture Terminal (VSAT) is a two-way satellite ground station equipped with a dish antenna ranges from 75 cm to 1.2 meters.

2. Functionality:

i) VSATs facilitate two-way communication via satellite. They relay data between small remote Earth stations (terminals) and other terminals (in mesh topology) or central Earth station "hubs" (in star topology).

ii) VSATs handle both narrowband data and broadband data.
Ex-Narrowband data: Credit card transactions, polling, RFID data, or SCADA
Ex-Broadband data: Satellite Internet access, VoIP, or video

3. Applications: They find use in providing connectivity to remote locations, supporting transportable or on-the-move communications (using phased array antennas), and enabling mobile maritime communication.

4. Advantages: In the realm of modern telecommunications, VSATs offers a number of advantages:

i) No physical network needed: VSATs rely on satellite signals instead of physical links like Ethernet cables, reducing the risk of structural issues and eliminating the need for extensive infrastructure.

ii) Independent operation: VSAT systems can operate independently for local telecommunication networks, serving as a backup for wired networks in case of failure.

iii) Easy deployment: VSATs can be installed in remote locations with minimal infrastructure requirements, as satellite signals can be redirected to various locations through a central hub.

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5. Disadvantages: It has few disadvantages:

i) Latency: VSATs suffer from latency due to the time delay in signals traveling between space and the ground, especially noticeable in two-way communication.

ii) Signal quality changes: Weather conditions and obstructions like buildings or trees can cause signal distortion between the satellite and earth station.

Mission Divyastra: Agni-V Missile with MIRV Technology

Why in the News?

India recently conducted a test of the Agni-V ballistic missile with MIRV technology. The test was carried out by the **Defence Research and Development Organisation (DRDO)** as part of Mission Divyastra.

> **Mission Divyastra**
> Mission Divyastra is the first test flight of India's indigenously developed Agni-5 missile with MIRV technology, led by the DRDO.

What are Agni missiles?

About– Agni missiles are long-range ballistic missiles designed for surface-to-surface attacks and capable of carrying nuclear payloads.

First Variant-The first missile in the series, Agni-I, was developed as part of the **Integrated Guided Missile Development Programme (IGMDP)** and tested in 1989.

Designated as a special Program:
a. After its success, the Agni missile program became independent from the IGMDP due to its strategic significance.
b. It was designated as a special program in India's defense budget and received sufficient funds for further development.

Agni missiles variants and range

AGNI MISSILE FAMILY

- Agni-I Medium range ballistic missile, 700 – 1200 km range.
- Agni-II intermediate range ballistic missile, 2,000-2,500 km range.
- Agni-III intermediate range ballistic missile, 3,000 - 5,500 km range.
- Agni-IV intermediate range ballistic missile, 3,200-3,700 km range.
- Agni-V intercontinental ballistic missile, 5,000 km range.
- Agni-VI intercontinental ballistic missile, 10,000 km range (under development)

Figure 23.Source- World-defense

About Agni V missile

About– Agni-V is India's intercontinental ballistic missile (ICBM), developed by the Defence Research and Development Organisation (DRDO).

Range– The range of Agni-V extends beyond 5,000 kilometers and can reach most parts of China.

Propulsion– It's a three-stage missile powered by solid fuel. Using composite motor casing in the second and third stages makes it lighter, improving both its range and payload capacity.

Latest variant with MIRV tech– The missile latest variant

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features MIRV technology, which was developed over five decades ago and is possessed by only a few countries.

What is MIRV technology?

Full form– MIRV stands for Multiple Independently Targetable Re-entry Vehicle.

About– It is a missile technology that enables one missile to carry multiple nuclear warheads, each capable of hitting different targets.

Other Countries equipped with this technology– Currently, the United States, Russia, China, France, and the United Kingdom possess MIRV-equipped missiles. These missiles can be launched from either land-based platforms or submarines at sea.

Graphics processing unit (GPU)

Why in the News?

This article discusses the Graphics Processing Unit (GPU), which has seen a surge in demand as the global community eagerly embraces the latest advancements in AI technology.

What is Graphics Processing Unit (GPU)?

1. About– It is a computer chip that rapidly calculates mathematical operations to display graphics and images. Similar to a central processing unit (CPU), a GPU is a chip component found in computing devices.

2. Purpose– GPUs serve purposes in both professional and personal computing. Initially, they were designed for rendering 2D and 3D images, animations, and videos, but now they have a wider use.

3. Applications- Creative content creation, video editing, high-performance computing (HPC), and artificial intelligence (AI).

4. Key difference between CPU and GPU:
a. One key difference is that the GPU is designed to accelerate and manage graphics tasks, displaying graphics content on devices such as PCs or smartphones.
b. A regular modern CPU has around 8 to 16 "cores," each handling tasks one by one. In contrast, GPUs have thousands of smaller cores that work simultaneously, or "in parallel," for swift processing.

INFAAR 2019-22 Report: First national report on AMR surveillance in India's fisheries, livestock sectors

Why in the News?

The **Food and Agriculture Organization** (FAO) of the United Nations and the **Indian Council of Agricultural Research (ICAR)** released surveillance data of the Indian Network for Fishery and Animal Antimicrobial Resistance (INFAAR) for 2019-22.

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INFAAR 2019-22 Report is the first national report on AMR surveillance in India's fisheries and livestock sectors.

What is Antimicrobial Resistance (AMR)?

Antimicrobial Resistance (AMR) is the resistance of microorganisms (bacteria, virus, parasites and fungi) to an antimicrobial agent (antibiotics, fungicides, antiviral agents and parasiticides), to which they were first sensitive.

About INFAAR (Indian Network for Fishery and Animal Antimicrobial Resistance)

1. INFAAR is a laboratory network established by ICAR.

2. It receives technical assistance from the Food and Agriculture Organization (FAO) and the United States Agency for International Development (USAID).

3. It is dedicated to conducting AMR surveillance in the fisheries and livestock sectors.

What are the key findings of the report?

Data collection:
a. The (INFAAR) collected data from 2019-2022, covering 3 aquaculture systems (freshwater, brackish-water and marine) and major food-producing animals.
b. Resistance was profiled for Staphylococcus aureus, coagulase-negative Staphylococcus species (CONS), Escherichia coli, Aeromonas species Vibrio parahaemolyticus and Vibrio sp.

1. Resistance pattern in fisheries sector:
a. Isolates of Staphylococcus aureus exhibited high resistance against penicillin across all systems.
b. Freshwater fish displayed significant resistance to ciprofloxacin (54.8%), while marine samples showed higher resistance to cefotaxime (54.1%).
c. Significant resistance was also observed in shrimp samples against ampicillin.

2. Resistance pattern in livestock sector:
a. E. coli and Staphylococcus isolates from various livestock were tested for antimicrobial resistance profiles. Increased resistance, especially in E. coli and Staphylococci, was noted in the livestock sector.
b. Isolates from poultry showed higher resistance rates to various antibiotics compared to those from other food animals.

Hemoglobin A1C (HbA1C) Test for Diabetes

Why in the News?

This article discusses the Hemoglobin A1C (HbA1C) Test, which is used to diagnose diabetes. According to a nationwide study published in 2023, India has an estimated 10.13 crore people with diabetes and another 13.6 crore people who are pre-diabetic.

What is Hemoglobin A1C (HbA1C) Test?

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Source – The Hindu

1. About:

a. It is one of the most commonly-used tests to diagnose pre-diabetes and diabetes (both type 1 and type 2) and to help manage diabetes.

b. It is also known as the glycated haemoglobin or glycosylated haemoglobin test.

2. Significance– This blood test is vital for assessing the effectiveness of your diabetes management.
Note – Hemoglobin, a protein found in red blood cells, carries oxygen from your lungs to the rest of your body.

How does the test work?

1. Sugar from the food, that the individual eats, enters the bloodstream and binds to the hemoglobin in red blood cells.

2. Everyone has some sugar attached to their hemoglobin, but individuals with pre-diabetes and diabetes tend to have higher levels.

3. The HbA1C test measures the percentage of hemoglobin in red blood cells that is coated with sugar.

Advantage over other traditional test

1. Fasting and post-meal blood sugar tests measure sugar levels at specific times, whereas the HbA1C test reflects average glucose levels over a period of two to three months.

2. Unlike traditional tests, HbA1C isn't influenced by recent meals, making it more dependable and usable regardless of meal timing.

SIMA: Google Deepmind's new AI

Why in the News?

Google DeepMind introduced its newest AI gaming agent, SIMA. It can understand and execute tasks in video game environments based on natural language instructions.

What is SIMA?

1. Full form– Scalable Instructable Multiworld Agent (SIMA)

2. About– SIMA is an AI agent that can process data and take actions autonomously. It can be referred to as a generalist AI agent capable of performing various tasks.

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3. Features:
a. It is like having a virtual friend, who can understand and follow instructions in any virtual setting, whether it's exploring dungeons or constructing castles.
b. This virtual buddy can complete tasks and overcome challenges given to it.
c. By processing human language, it "understands" human commands, so when anyone asks it to build a castle or locate a treasure chest, it knows precisely what you mean.
d. One notable trait of this AI Agent is its ability to learn and adjust. SIMA learns from its experience and interactions with users.

4. Training – Google partnered with game developers to train SIMA in multiple video games.

5. Significance– This research marks the first time an agent has demonstrated the ability to understand various gaming environments and perform tasks within them using natural-language instructions, similar to a human.

What is the difference between AI agent and AI Model?

Google DeepMind refers to SIMA as an AI Agent, which differs from AI models such as OpenAI's ChatGPT or Google Gemini.

Aspect	AI Model	AI agent
Actionability	AI models undergo training on extensive datasets and have limitations in independent operation.	An AI Agent has the ability to process data and take actions autonomously.
Data input	AI models process input data and generate outputs using predefined algorithms and learned patterns.	They might use AI models to help make decisions, but they also add extra layers of logic, learning, or planning to handle complex situations.
Examples	OpenAI's ChatGPT, Google Gemini	Siri, Alexa, and Google Assistant

WHO launches CoViNet

Why in the news?

The World Health Organisation (WHO) has recently launched a new network for coronaviruses, CoViNet.

About CoViNet

Description-It is a network of global laboratories with expertise in human, animal and environmental coronavirus surveillance.

Objective-To identify and monitor potentially novel coronaviruses that could emerge shortly.

Features–

1) It currently comprises 36 laboratories from 21 countries in all six WHO regions.

2)There will be 3 Indian laboratories namely; the Council of Scientific and Industrial Research-National Environmental Engineering Research Institute, the Indian Council of Medical Research-National Institute of Virology in Pune, and the Translational Health Science and Technology Institute in this network.

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What is the significance of CoViNet?

1) It will have animal health and environmental surveillance. This will ensure timely risk assessment to feed WHO policies and support protective measures.

2) It will support the building of more laboratories to monitor MERS-CoV and novel coronaviruses of public health importance In low- and middle-income countries.

3) Data that will be generated through this network will guide the work of WHO's Technical Advisory Groups on Viral Evolution (TAG-VE) and Vaccine Composition (TAG-CO-VAC) and others. This will ensure that global health policies and tools are based on the latest scientific information.

H5N1 bird flu

Why in news?

It has been observed that since 2020 H5N1 has been spreading across the globe posing an existential threat to birds and wildlife.

H5N1 bird flu

1. About: Bird flu, also known as avian flu, refers to an infectious viral illness that mainly infects and spreads among poultry and some wild birds.

2. **Origin:** The virus was first reported in geese in China in 1996. Since then, outbreaks have been reported periodically across the world. India reported the presence of the virus in Nandurbar, Maharashtra, in 2006.

3. **Factor behind outbreak:** The exact factors behind the large outbreaks of the bird flu are still largely unknown. Some scientists, however, suggest that one reason could be climate change.

4. **Origin of new version of virus:** The new version of H5N1 first emerged in Europe in 2020 and then rapidly reached Europe, Africa, and Asia. The currently circulating type of H5N1 is one such highly pathogenic flu virus.

By late 2021, it had spread to North America and in the fall of 2022, it appeared in South America. In February 2024, the virus stormed through mainland Antarctica.

6. **Spread among birds:** Along with affecting farm birds, the virus has also significantly harmed wild birds, particularly those species that are already facing the threat of extinction.

7. **Spread among mammals:** The spread of the virus among mammals, including foxes, pumas, skunks, and both black and brown bears in North America and farmed minks in Europe, raises concerns due to the potential for increased virulence and cross-species transmission in overcrowded conditions.

The marine mammals such as sea lions and dolphins' seals, elephant seals have also been killed due to virus.

9. Spread among humans: Human bird flu infections are rare. It typically occurs in individuals exposed to large numbers of infected birds at poultry farms, indicating a higher risk with increased viral exposure

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Subject: Environment

Report on Status of Leopard in India

Why in the News?

Recently, the Environment Ministry, in collaboration with the **National Tiger Conservation Authority (NTCA)** and the **Wildlife Institute of India (WII)**, unveiled the fifth cycle of leopard population estimation in India.

Key findings of the Fifth cycle of leopard population estimation in India

Figure 24.Source- PIB

1. Population Estimate:
a. India's leopard population is estimated at 13,874, showing stability compared to the previous count. The numbers rose by 8% from 12,852 in 2018 to 13,874 in 2022.
b. However, this only covers 70% of leopard habitat, with the Himalayas and semi-arid regions not included in the survey.

2. Region-wise Trends– In Central India, the leopard population remains stable or shows slight growth, whereas in the Shivalik hills and Gangetic plains, there is a decline in population.

3. State-wise distribution:
a. The highest number of leopards were reported in Madhya Pradesh (3,907), followed by Maharashtra (1,985), Karnataka (1,879) and Tamil Nadu (1,070).
b. The tiger reserves or locations with the highest leopard populations include Nagarajunasagar Srisailam in Andhra Pradesh, followed by Panna and Satpura in Madhya Pradesh.

4. Survey Methodology– The study targeted forested habitats across 18 states with tiger populations, employing foot surveys and camera traps. It captured over 4,70,81,881 photographs, resulting in 85,488 images of leopards.

Melanochlamys droupadi: Sea slug named after President Murmu

Why in the News?

The Zoological Survey of India (ZSI) has announced the discovery of a new marine species of head-shield sea slug. It has been named as Melanochlamys droupadi after the President of India, Droupadi Murmu.

About Melanochlamys droupadi

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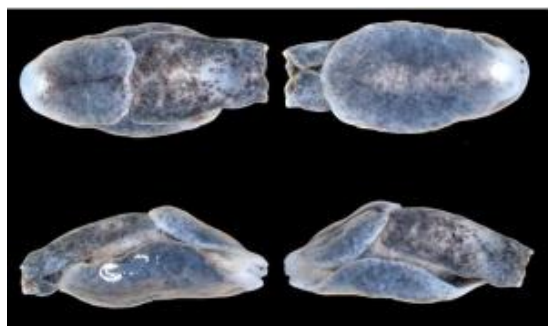Visit academy.forumias.com for our mentor based courses.
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Figure 25.Source- The Hindu

1. Place of Discovery– It was discovered from Digha of West Bengal coast and Udaipur of Odisha coast.

2. Distinct Feature– It is characterized by a short, blunt and cylindrical body and a smooth dorsal surface with two dorsal equal or unequal shield.

3. Physical attributes:
a. It's a tiny brownish-black invertebrate, measuring up to 7 mm long, with a ruby red spot at its rear.
b. It has a shell inside its body, and is a hermaphrodite (organisms possesses both male and female reproductive organs).

4. Reproduction– They reproduce between November and January.

5. Habitat– These species are typically found along the intertidal zone, leaving crawl marks on sandy beaches.

6. Distribution– Species of the genus Melanochlamys are primarily found in temperate regions of the Indo-Pacific Ocean, but three species are truly tropical: Melanochlamys papillata from the Gulf of Thailand, Melanochlamys bengalensis from West Bengal and Odisha coasts, and the current species (Melanochlamys droupadi).

BioTRIG- New waste management technology

Why in the News?

A recent study has claimed that BioTRIG, a new waste management technology, could help rural Indians.

About Biotrig
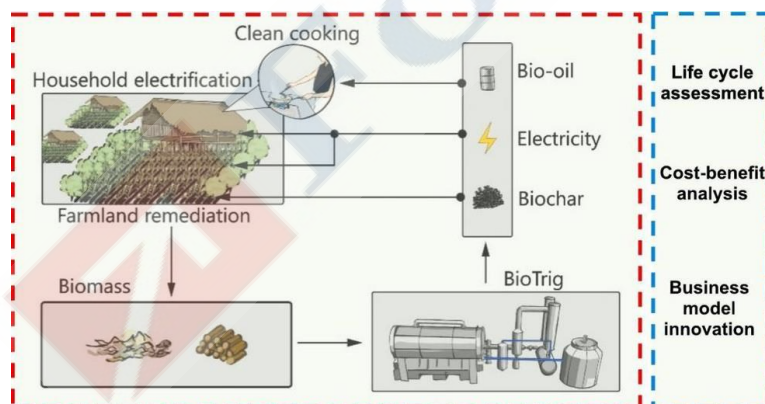
Figure 26. Source- Down to Earth

1. **About:** It is a new waste management technology which works on the pyrolysis system.

Note: Pyrolysis is a kind of chemical recycling that turns leftover organic materials into their component molecules.

2. **How it works:** Waste is sealed inside an oxygen-free chamber. The sealed waste is then heated above 400 degrees Celsius. During this process, useful chemicals are produced.

3. BioTRIG generates three valuable products: Bio-oil, Syngas and Biochar fertilizer.

4) **Significance:**

a) The bio-oil is a clean-burning alternative to dirty cooking fuels in homes.

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b) The syngas and bio-oil facilitates heating and powers the pyrolysis system, and surplus electricity is utilised to power supply to local homes and businesses,

c) Biochar improves soil fertility and helps store carbon.

d) The BioTRIG system could help to reduce greenhouse gas emissions from communities by nearly 350 kg of CO2-eq per capita per annum.

Amrabad Tiger Reserve

Why in the News?

Recently, it was found that the **Amrabad Tiger Reserve (ATR)** is facing challenges such as understaffing and financial constraints.

About Amrabad Tiger Reserve (ATR)

Source- Times of India

Aspect	Details
About	1. This Tiger Reserve (ATR) is one of the largest tiger reserves in India. 2. Amrabad is the second-largest Tiger Reserve in terms of core area. 3. It is also the sixth largest in terms of total area among 51 Tiger Reserves in India.
Location	It is located in the Nagarkurnool and Nalgonda districts in the southern part of Telangana.
History	The reserve was notified as a sanctuary in the year 1983.
Distinct feature	1. Amrabad Tiger Reserve Forest is home to the largest number of Tigers in Telangana State. 2. The hilly terrain of this Tiger Reserve, with deep valleys and gorges, forms the catchment of the Krishna River.
Flora	1. Dense grass occurs in 30% of the area and scattered in an additional 20%. 2. Dominant tree species include *Terminalia tomentosa, Hardwickia binata, Madhuca latifolia.*

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	Diospyros melanoxylon, Gardenia latifolia, Anogeissus latifolia, Chloroxylon swietenia, Terminalia spp.
Fauna	1. Major wild animals found are Tiger, Leopard, Wild dog, Indian Wolf, Indian fox, Rusty-spotted cat, Small Indian civet, Sloth bear, Honeybadger, Wild boar etc. 2. Over 303 bird species have been identified in this region. Some important groups include Eagles, Pigeons, Doves, Cuckoos, Woodpeckers, Drongos etc

Begonia Narahari

Why in the News?

A new flowering plant species named Begonia Narahari was recently discovered by researchers in Arunachal Pradesh.

About Begonia Narahari

Figure 27. Source- bnn

1. Discovery and Identification:
a. It is a newly discovered flowering plant species belonging to the Begonia genus within the Begoniaceae family.
b. The species, named 'Narahari,' is a tribute to Prof. Garikapati Narahari Sastry for his contributions to the well-being of the region and the establishment of the Germplasm Conservation Centre for the bio-resources of Northeast India.

2. Characteristics:
a. Begonia Narahari is known for its vibrant blue iridescence when exposed to direct light, a unique characteristic that helps distinguish it from related species during identification.
b. Currently, Begonia naraharii is only found in the Demwe area within the Lohit district of Arunachal Pradesh.

3. Conservation Status:
a. Due to limited information about its global population, the species is temporarily labeled as Data Deficient (DD) per the IUCN species assessment guidelines.
b. The limited habitat and possible threats like agricultural expansion, fires, and timber extraction highlight the importance of focused conservation efforts.

Blue Leaders Alliance

Why in the news?

The Blue Leaders High-Level Event on Biodiversity Beyond National Jurisdiction was held in Belgium on March 7, 2024.

About Blue Leaders

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1. **About:** It is an alliance of countries calling for urgent action to save the global ocean in the face of the climate crisis, overfishing, pollution, and other threats.

2. **Members:** There are 24 member countries of blue Leaders. Belgium, Costa Rica, Ecuador, Germany, Italy, Netherlands, Spain are some of the key members of this alliance.

Note: India is not the member of this alliance.

3. **Goals:** The Blue Leaders are committed to two major goals:

a) Securing a new international target to protect at least 30% of the global ocean through a network of highly and fully protected marine areas by 2030.

b) The rapid and successful conclusion of a new High Seas Treaty that provides for establishment of fully and highly protected marine areas in the high seas and strengthens management of human activities outside protected areas.

Golden langurs

Why in the news?

The latest survey of the primate has revealed that there are an estimated 7,396 golden langurs in India.

About Golden langurs

Source-Wikipedia

Aspect	Details
Description	It is an Old World monkey found in a small region of Western Assam, India and in the neighbouring foothills of the Black Mountains of Bhutan
Characteristics	1) They are most easily recognized by the colour of their fur, after which they are named. 2) They are highly dependent on trees, living in the upper canopy of forests. They are also known as leaf monkeys.
Habitat	It is endemic to western Assam, India, and southern Bhutan. Their habitat is restricted to the region surrounded by four geographical landmarks: the foothills of Bhutan (North), Manas river (East), Sankosh river (West), and Brahmaputra river (South).
Population distribution	The northern extended population, which encompasses the western part of the Manas Biosphere Reserve. It extends from the Sankosh River to the Manas river up to the India-

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	Bhutan border.
Protection status	IUCN List of Threatened Species: Endangered Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I Wildlife Protection Act, 1972 : Schedule I
Threats	1) Restricted Habitat-Their habitat is restricted by natural boundaries, further increasing the threat of extinction. 2) Habitat Fragmentation-Their habitat in Assam has fragmented drastically, especially after a thrust on rural electrification and massive deforestation. 3) Inbreeding-Obstructions such as wires, and gaps in the forest due to felling, have increased the threat of inbreeding among golden langurs.

Fifth mass coral bleaching event

Why in the news?

The Great Barrier Reef is experiencing its fifth mass coral bleaching event in eight years.

About Coral bleaching

1. About: When corals are stressed by changes in conditions such as temperature, light, or nutrients, they expel the symbiotic algae living in their tissues, causing them to turn completely white. This is called coral bleaching.

2. Causes: Change in ocean temperature caused by climate change, run-off and pollution storm, overexposure to sunlight, extreme low tides cause coral bleaching.

3. **Impact on wildlife:** Coral reefs support some of the most biodiverse ecosystems on the planet:

i) Coral reefs are vital ecosystems supporting diverse marine life, including sea turtles, fish, crabs, and more.

ii) They offer shelter, breeding grounds, and protection, crucial for many species' survival. Reef collapse threatens this biodiversity, risking extinction for at-risk species.

4. Impact on Humans: It threatens livelihoods, food security, and safety.

i) Reefs act as natural barriers, protecting coastal communities from waves and storm surges. Without them, costly and less effective seawalls become necessary, harming the environment.

ii) Bleaching exacerbates overfishing by disrupting the food web and depriving species of vital habitats for spawning. This impacts those reliant on marine resources for income and sustenance.

iii) Reef tourism is a multi-billion-dollar industry faces jeopardy as bleached reefs deter visitors and impact local economies and jobs.

Global Methane Tracker 2024

Why in the News?

Figure 28.Source-DownToEarth

According to the **International Energy Agency's (IEA)** Global Methane Tracker 2024, methane emissions from fuel usage in 2023 nearly reached their highest level ever, totaling 120 million tonnes (Mt).

> **About Global methane Tracker**
>
> **1.** It is an annual report released by the International Energy Agency (IEA).
>
> **2.** It uses the latest data on methane emissions from the energy sector and includes new scientific studies, measurements, and satellite data.

What are the Key findings of the Global Methane Tracker 2024?

1. Record-high methane emissions:
a. In 2023, methane emissions from fuel use were nearly the highest ever, reaching 120 million tonnes (Mt). This represents a slight increase compared to 2022.
b. Out of the 120 Mt of methane released into the atmosphere, approximately 80 million tons came from only 10 countries.

2. Top emitters– The United States tops the list in methane emissions from oil and gas operations, with Russia following closely. Meanwhile, China leads in emissions from coal operations.

3. Additional emission– Bioenergy, produced from plant and animal waste, resulted in an additional 10 million tons of emissions.

4. Emission Trends– Although studies indicate that emissions are declining in certain areas, the overall emissions remain excessively high to achieve the world's climate objectives.

5. Actions needed:
a. The world must reduce methane emissions from fossil fuels by 75% by 2030 to meet the Paris Agreement target of limiting warming to 1.5°C.
b. The IEA estimated that this goal would require about $170 billion in spending. This is less than 5 percent of the income generated by the fossil fuel industry in 2023.

Note- Methane contributes to about 30% of the global temperature increase since the preindustrial era. The energy sector, covering oil, natural gas, coal, and bioenergy, makes up more than one-third of human-caused methane emissions.

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Pobitora Wildlife Sanctuary

Why in the News?

Recently, a petition has been filed in the Supreme Court seeking relief from demarcating Pobitora Wildlife Sanctuary and removing encroachments.

About Pobitora wildlife Sanctury

Aspect	Details
Location	1. It is located on the southern bank of the Brahmaputra River in Morigaon district, Assam. 2. It covers 38.85 km² area providing grassland and wetland habitat for the Indian rhinoceros. 3. The Sanctuary consists of the Rajamayong Reserve Forest and Pobitora Reserve Forest.
Status	It attained the status of a wildlife Sanctury in 1987.
Special Feature	1. It is known for holding the highest density of Greater One Horned Rhinoceros in the country. 2. Pobitora Wildlife Sanctuary also known as "Mini Kaziranga" due to its comparable landscape and notable population of the one-horned rhinoceros.
Vegetation	It has grassland vegetation consists of at least 15 grass species.
Flora	Pabitora Wildlife sanctuary comprised of wet savannah, featuring a variety of vegetation such as Arundo donax, Erianthus ravennae, Phragmites karka, Imperata cylindrica, and Saccharum spp.
Fauna	1. The wildlife sanctuary is home to endangered one-horned rhinoceros and the other mammals such as Leopard, Leopard cat, Fishing cat, Jungle cat, Feral Buffalo, Wild pigs, Chinese pangolins, etc.

Captive Elephant Rules 2024

Why in the News?

Recently, the Centre has notified a set of rules called the Captive Elephant (Transfer or Transport) Rules, 2024.

Captive Elephant (Transfer or Transport) Rules, 2024

1. Captive Elephant (Transfer or Transport) Rules, 2024 aims to liberalise the conditions under which elephants may be transferred within or between States.

2. **Circumstances under which captive elephants can be transferred-** The rule highlight certain circumstances under which captive elephant can be transferred:

a) when an owner is no longer in a position to maintain the elephant

b) when the elephant will likely have a better upkeep than in the present circumstances

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c) when a State's Chief Wildlife Warden "deems it fit and proper" in the circumstances of the case for better upkeep of the elephant.

3. **Pre-requisite for transfer:**

a) Before a transfer within the State, an elephant's health has to be ratified by a veterinarian.

b) The Deputy Conservator of Forests must establish that the animal's current habitat and prospective habitat are suitable.

c) The Chief Wildlife Warden (on receipt of such documents) may reject or approve the transfer.

Note: If the transfer involves moving the elephant outside a State, similar conditions apply.

d) Before a transfer is effected, the "genetic profile" of the elephant has to be registered with the Ministry of Environment, Forest and Climate Change.

e) A mahout and an elephant assistant should accompany the animal, a health certificate, a quarantine period before the transfer and more are also part of the rules.

4. **Earlier provision:** Until August 2022, the Wildlife Protection Act explicitly prohibited the trade in wildlife including both wild and captive elephants. Amendments to the Act in 2022, brought in an exemption that for the first time allowed captive elephants to be moved.

5. A Parliamentary Committee had recommended the deletion of this exemption clause for elephants. However, the final version of the amended Act retains the clause.

Bugun Liocichla Bird

Why in the News?

The Buguns, a major tribe living near **Eaglenest Wildlife Sanctuary** in Arunachal Pradesh, have generously donated 1,470 hectares of land to conserve the Bugun Liocichla bird.

What is Bugun Liocichla?

Source- India Today NE

Aspect	Details
About	Bugun Liocichla (Liocichla bugunorum) is a bird species.

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Official recognition	It was first spotted in 1995 in Arunachal Pradesh. However, the bird was officially documented in 2006 after astrophysicist Ramana Athreya discovered it in Arunachal Pradesh's Eaglenest Wildlife Sanctuary.
Conservation Status	IUCN: Critically Endangered
Habitat	It is primarily observed in specific areas within Eaglenest Wildlife Sanctuary and Braiduah village under the Singchung subdivision of Arunachal Pradesh. There are only 14-20 of these birds in the state.
Characteristics	1. This bird is a small babbler, measuring just 20 cm, with olive-grey feathers and a black cap. 2. It is exclusively found in the Eaglenest Wildlife Sanctuary and nowhere else in the world.
Conservation efforts	The Arunachal Pradesh government officially declared Braiduah Community Reserve protected under the Wildlife Protection Act, 1972. The reserve is situated adjacent to the Eaglenest Wildlife Sanctuary.
Significance	It was the first bird discovered since India's Independence.

About Bugun Tribe

Figure 29.Source- voiceofruralindia.org

1. Origin in India – The Buguns migrated from Tibet through East Kameng, Arunachal Pradesh.

2. Livelihood & Habitat:
a. Their daily lives are deeply connected to their environment.
b. Similar to other Indo-Mongoloid tribes in Arunachal Pradesh, the Buguns, also construct their homes using bamboo.
c. The Buguns are known for their hard work in farming and their skill in extracting oil from a local wood species called Chiblem, which is found in the forests.

3. Lifestyle:
a. They have separate borders with neighboring tribes and speak a distinct language called Khowa.
b. They have their own decision-making body called Nimiang, which oversees the community's affairs.
c. Buguns tend to practice endogamy by marrying individuals within their own community.

4. Festival– The Bugun people celebrate their annual festival known as "Pham-Kho."

World Air Quality Report 2023

Why in the News?

According to the World Air Quality Report 2023, Delhi was identified as the city with the poorest air quality.

About World Air Quality Report 2023

1. Published by– Swiss organisation IQAir.

2. Data collection – The data encompassed information from 7,812 sites across 134 countries, regions, and territories.

Key findings

1. India ranked third in terms of air quality, with an average annual concentration of particulate matter 2.5 (PM2.5) at 54.4 micrograms per cubic meter.

2. India ranked lower than only two of its neighboring countries, Bangladesh and Pakistan.

3. Bangladesh had the highest pollution level globally, with an average PM2.5 concentration of 79.9 micrograms per cubic meter, while Pakistan ranked second with 73.7.

4. It also named Delhi as the world's most polluted capital city for the fourth year in a row.

5. Begusarai in Bihar was identified as the most polluted metropolitan area globally.

6. India has ten of the top 11 most polluted cities globally, with the remaining one being Lahore in Pakistan.

7. 96 percent of India's population faces PM2.5 levels that exceed the WHO annual guideline by more than seven times.

Genetic rescue in Ranthambore National Park

Why in the News?

Recently, during a study, genetic rescue was suggested as a strategy to preserve the tiger population in Ranthambore National Park.

What is Genetic rescue?
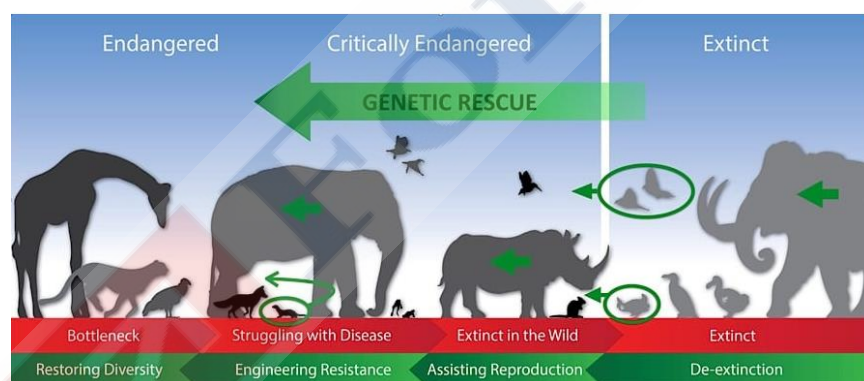
Figure 30.Source- revive & restore

1. About:
a. Genetic rescue is the process of increasing population growth. This is done by introducing new genetic diversity through the migration of individuals into another small population, a process known as gene flow.
b. In practice, wildlife managers take individuals from a larger, healthier population and bring them to a smaller one

to introduce new variation and aid in population growth.

2. Aim– This strategy aims to reduce genetic problems, lower extinction risks, and improve the survival of endangered species and populations.

3. Applications- It is commonly used in conservation biology to counteract inbreeding depression. This occurs when closely related individuals mate within a population, resulting in reduced success in reproduction and offspring viability.

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4. Impacts:
a. Genetic rescue can have positive or negative effects, influenced by factors such as the extent and duration of gene flow, as well as genetic and non-genetic factors that impact population dynamics.
b. Moving animals around can pose risks, which is why it's usually considered a final option.

About Ranthambore National Park

Aspect	Details
Location	**1.** It is located in Sawai Madhopur district of Rajasthan. **2.** It is located at the junction of the Aravali and Vindhya hill ranges.
History	**1.** Ranthambore National Park started as Sawai Madhopur Game Sanctuary in 1955 by the Indian Government. **2.** It became a Project Tiger reserve in 1973. **3.** Ranthambore was designated as a national park in 1980.
River	The park is bounded to the north by the Banas River and to the south by the Chambal River.
Connected wildlife sanctuary	Kailadevi Wildlife Sanctuary and Sawai Mansingh Wildlife Sanctuary are connected to the core of Ranthambore NP by narrow corridors, forming part of the Tiger Reserve.
Vegetation	Mixed Deciduous type
Flora	**1.** The most prevalent plant species in Ranthambore National Park is the "Dhok," scientifically known as Anogeissus pendula. **2.** Other plant species include Banyan (Ficus bengalensis), Pipal (Ficus religiosa) and Neem (Azadirachta indiaca), Babul (Accasia nilotica), Gum (Sterculia urens) etc.
Fauna	**1.** Tigers, leopards, striped hyenas, common or hanuman langurs, rhesus macaques, jackals, jungle cats, caracals, blackbuck, etc. **2.** It is also home to more than 270 bird species, such as the crested serpent eagle, painted francolin, and Indian paradise flycatcher.

International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE)

Why in the News?

Recently, the 41st Steering Committee Meeting of the International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE) was hosted by India in New Delhi.

About International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE)

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Source: PIB

1. **About:** The International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE) is an international inter-governmental partnership. It was established in 2003.

2. **Member:** It consists of 23 member countries and the European Commission. The member countries include major economies such as the United States, Japan, Germany, China, South Korea, Canada, and India.

3. **Mission:** The IPHE's mission is to facilitate and accelerate the transition to clean and efficient energy and mobility systems using hydrogen and fuel cell technologies across applications and sectors.

4. IPHE serves as a mechanism to organize and implement effective, efficient, and focused international research, development, demonstration, and commercial utilization activities related to hydrogen and fuel cell technologies.

5. It also provides a forum for sharing information on policies and technology status, as well as on initiatives, codes, and standards to accelerate the cost-effective transition to the use of fuel cells and hydrogen in the economy.

Strict rule on Bio plastic

Why in the news?

The Environment Ministry has recently introduced rules that make it harder for makers of disposable plastic ware to label such products as 'biodegradable'. It has introduced a stipulation that makers of disposable plastic ware must not leave any microplastics behind.

What are the broad kinds of technological fixes to address India's plastic waste pollution?

Figure 31.Source-iStock

Biodegradable plastic-It involves plastic goods being treated before they are sold.

Compostable plastics-They degrade, but require industrial or large municipal waste management facilities to do so.

What are the recent changes?

As per new amendments to India's Plastic Waste Management (Amendment) Rules, 2024, biodegradable plastics will be defined as materials which are not only capable of degradation by biological processes in specific environment such as soil, landfill but also as materials that do not leave any microplastics.

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What are the issues with recent changes?

1) The rules do not specify which chemical tests can be used to establish the absence of microplastics.

2)The rules do not specify that up to what extent microplastics must be reduced in a sample in order to consider them eliminated.

3) Central Pollution Control Board (CPCB) has refused to provide makers of disposable plastic ware with a 'provisional certificate' to license their products as biodegradable.

Eturnagaram Wildlife sanctuary

Why in the News?

Telangana is currently grappling with forest fires in Tadvai region of Eturnagaram Wildlife Sanctuary in Mulugu and Amrabad Tiger Reserve.

About Eturnagaram Wildlife sanctuary

Aspect	Details
Location	1. It is located near the border of Maharashtra, Chhattisgarh and Telangana. 2. Eturnagaram is one of the oldest sanctuaries in Telangana.
Status	It was declared as a wildlife sanctuary in 1953.
River flowing through	The perennial river Dayyam Vagu flows through the sanctuary, separating the wildlife sanctuary into two parts. The river Godavari also passes through the sanctuary.
Vegetation	It has tropical dry deciduous type of vegetation.
Flora	The sanctuary is rich in the teak, bamboo and other trees like madhuca and terminalia. Climbers are the unique features which are found in abundance across the Sanctuary.
Fauna	Indian gour and giant squirrel are the keystone species in the sanctuary. It is home to Tiger, Leopard, Jackals Sloth Bear, Panther, Wolf, Wild Dogs,Chousingha, Sambar.

New cicada species found in Meghalaya

Why in news?

Scientists have found a new cicada species known colloquially as "Butterfly Cicadas" from Meghalaya.

About new species of cicada

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Figure 32.Source: Eastmojo

1. A new species of cicada in the Becquartina genus has been found in Meghalaya. It is the first-ever record of this genus in India.

2. The cicada's colourful wings have earned it the nickname "butterfly cicada," with the name "bicolour" reflecting its distinctive two-color pattern.

3. The cicada inhabits the dense forests of the Garo Hills, favoring areas with thick, native vegetation.

4. Its wings feature a deep saffron color on the lower third and a matte black on the upper two-thirds, highlighted by eye-catching saffron-colored square spots.

About cicada

1. Cicadas are insects known for their ability to produce sound.

2. They possess two sets of membranous wings, significant compound eyes, and three smaller eyes called ocelli.

3. Cicadas vary in size from medium to large, with their lengths ranging between 2 and 5 cm (0.8 to 2 inches), and there are over 3,000 known species.

4. These insects are predominantly found in tropical climates, including deserts, grasslands, and forests.

5. Male cicadas create loud sounds by vibrating the membranes (tymbals) located near their abdomen's base.

Meanwhile, female cicadas often deposit their eggs within the tissues of woody plants, and these eggs typically fall from the plant either when or shortly after hatching.

6. The cicada was first found in and around the plateau of Balpakram National Park of South Garo Hills District of Meghalaya state in the year 2017.

Later in 2020, the species was recorded from Nongkhrah community forest near Nongpoh in the Ri Bhoi district of Meghalaya.

Subject: Schemes & Programmes

Holistic Progress Card (HPC)

Why in the News?

PARAKH, a standard-setting body under NCERT, has introduced a new Holistic Progress Card (HPC). HPC includes feedback from parents, peers, and self-assessment by students to monitor their holistic development regularly.

What are the key features of the Holistic Progress Card (HPC)?

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Objective– Traditionally, schools focused on year-end exams, with teachers solely responsible for assessment. The HPC, aligning with **National Curriculum Framework for School Education (NCFSE)** guidelines, aims for a learner-centered evaluation.

WHAT IS HOLISTIC PROGRESS CARD

- New form of student evaluation based on recommendations of NEP 2020

- Doesn't depend on marks or grades to evaluate a student's academic performance

- Instead, it gives greater role to parents in tracking a student's achievements in class

- Students' own perception of their performance and what they wish to achieve in school included for the first time

Figure 33.Source- The Indian Express

Key features:

1. Classes involved-The HPC was created for the foundational stage (Classes 1 and 2), preparatory stage (Classes 3 to 5), and middle stage (Classes 6 to 8). Efforts are currently underway to develop a similar framework for the secondary stage.

2. Parameters of evaluation– At every stage, besides academics, students are evaluated on self-awareness, relationships, problem-solving, emotional intelligence, and creativity. After each activity, students reflect on their progress by circling statements like "I learned something new," "I expressed creativity," or "I helped others."

3. Method of evaluation:

a. Self assessment- Self assessment is included in the HPC for all students from Class 1 to Class 8. In middle school (Classes 6 to 8), students are prompted to set academic and personal goals with specific timelines at the start of the year.

The middle stage HPC also involves an "ambition card" where students list their goals for the year and areas for improvement, as well as the skills and habits needed to achieve them.

b. Parents involvement-The HPC will connect home and school by involving parents in their child's learning. Parents will provide feedback on homework completion, classroom engagement, and the child's ability to balance screen time with extracurricular activities at home.

c. Peer evaluation– The new assessment method also values peer evaluation. After each classroom activity, students must indicate whether their classmates effectively participated in learning and engagement.

Note– PARAKH urged all States to implement the HPC by adjusting it to suit their specific needs. States can also translate the HPC into regional languages as needed.

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ADITI scheme

Why in the news?

Recently, the Acing Development of Innovative Technologies with iDEX (ADITI) scheme was launched by Department of Defence Production.

Souce- Firstpost

About Acing Development of Innovative Technologies with iDEX (ADITI)

Aspect	Details
Description	1. The Department of Defence Production launched the ADITI scheme during the annual Defence Innovation Event – DefConnect 2024 held in New Delhi.
Objective	To create an ecosystem for fostering innovation and technology development in defence and aerospace by engaging industries, startups and academia.
Concerned Ministry	Department of Defence Production
Funding	Rs 750 crore
Salient features	1. ADITI specifically focuses on promoting innovations in critical and strategic defence technologies such as ammunition and explosives, armaments, aerospace, surveillance, sensors, propulsion, artificial intelligence and other future technologies. 2. It aims to develop about 30 deep-tech critical and strategic technologies in the proposed timeframe. 3. Technology Watch Tool aims to bridge gap between armed forces' requirements and innovation ecosystem capabilities
Benefits	The ADITI scheme is expected to provide major benefits to the defence sector in multiple ways: i) The scheme will reduce import dependence in critical technologies and help India to be self-reliant. ii) The development of advanced technologies will boost defence capabilities and preparedness. iii) The collaboration between industry, academia and armed forces will lead to knowledge enhancement. iv)The scheme will stimulate technology innovation, manufacturing and job creation.

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e-Kisan Upaj Nidhi

Why in the news?

Figure 34.Souce- Krishi Jagran

Recently, the union Minister for Consumer Affairs, Food & Public Distribution, Commerce and Industry and Textiles launched 'e-Kisan Upaj Nidhi' (Digital Gateway).

What is 'e-Kisan Upaj Nidhi'?

Aspect	Details
About	It is a digital gateway of Warehousing Development and Regulatory Authority (WDRA).
Objective	To ease the farmers' warehousing logistics and aid the farmers in receiving fair prices for their produce.
Nodal ministry	It is an initiative of the Department of Consumer Affairs, Ministry of Consumer Affairs, Food, and Public Distribution and Commerce and Industry and Textiles
Salient features	1) E-Kisan Upaj Nidhi' platform with its simplified digital process can ease the procedure of farmers' storage at any registered WDRA warehouse for a period of 6 months at 7% interest per annum. 2) It will integrate e-Kisan Upaj Nidhi and e-NAM to enables farmers to leverage interconnected markets, extending benefits beyond government Minimum Support Price (MSP).
Significance	This initiative with no collateral, extra security deposit policy aims to prevent distress sales by farmers, enabling better post-harvest storage opportunities.

IndiaAI Mission

Why in the News?

The Union Cabinet recently approved the IndiaAI Mission with a budget of Rs 10,372 crore for the next five years. This initiative includes funding for private companies to establish AI computing capacity in the country.

What is IndiaAI Mission?

Background– During the Global Partnership on Artificial Intelligence (GPAI) Summit in 2023 held in New Delhi, the Prime Minister of India declared India's intention to initiate an artificial intelligence (AI) mission.

Aim– The mission aims to create a comprehensive ecosystem, drive AI innovation, and encourage AI use across sectors. It prioritizes skill development and socio-economic change, in line with the vision of 'Making AI in India' and 'Making AI Work for India'.

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Nodal Ministry– Ministry of Electronics and Information Technology

Implementing Agency: 'IndiaAI' Independent Business Division (IBD) under Digital India Corporation (DIC)

What are the key components of the mission?

1. IndiaAI Compute Capacity-The objective is to develop an AI compute infrastructure comprising 10,000 or more Graphics Processing Units (GPUs) via partnerships between the public and private sectors. Additionally, an AI marketplace will be developed to provide AI as a service and pre-trained models to AI innovators. **Note**– The AI compute infrastructure will be implemented through a public-private partnership with 50% viability gap funding. If compute prices decrease, the private entity must increase compute capacity within the same budget to meet growing demand

2. IndiaAI Innovation Centre– The Center will create and use its own Large Multimodal Models (LMMs) and domain-specific foundational models in critical sectors.

3. IndiaAI Datasets Platform– It will simplify access to high-quality, non-personal datasets for AI innovation. It aims to offer Indian startups and researchers a single platform for easy access to non-personal datasets.

4. IndiaAI Application Development Initiative– This initiative will promote AI applications in critical sectors by addressing problem statements obtained from Central Ministries, State Departments, and other sources.

5. IndiaAI FutureSkills– It aims to reduce barriers to entry into AI programs and will expand AI courses at undergraduate, master's, and Ph.D. levels. Additionally, Data and AI Labs will be established in Tier 2 and Tier 3 cities across India to offer basic level courses.

6. IndiaAI Startup Financing– This pillar aims to help and speed up deep-tech AI startups, offering them easier access to funding for futuristic AI projects.

7. Safe & Trusted AI– This pillar will support the execution of responsible AI projects, which involves creating indigenous tools and frameworks.

UNNATI 2024- Uttar Poorva Transformative Industrialization Scheme 2024

What is the News?

Recently, Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade proposed Uttar Poorva Transformative Industrialization Scheme, 2024 (UNNATI – 2024).

About Uttar Poorva Transformative Industrialization Scheme, 2024 (UNNATI – 2024)

Aspect	Details
Description	i) Uttar Poorva Transformative Industrialization Scheme, 2024 (UNNATI – 2024) is for the development of Industries and generation of employment in the states of North East Region. ii) It is a central sector scheme.
Objective	To generate gainful employment, leading to the overall socio-economic development.
Concerned Ministry	Ministry of Commerce and Industry

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Funding	Rs.10,037 crore
Duration	10 years from the date of notification along with 8 years for committed liabilities
Features	i) Commencement of Production or operation: All eligible Industrial Units to commence their production or operation within 4 years from the grant of registration. ii) Districts are categorized in two zones: Zone A (Industrially Advanced Districts) & Zone B (Industrially Backward Districts) iii) Earmarking of funds: 60% of the outlay of Part A has been earmarked to 8 NE states and 40% on First-In-First-Out (FIFO) basis. iv) All new Industrial units and Expanding units would be eligible for the respective incentives.
Benefits	i) It will create productive economic activity in the manufacturing and service sectors. ii) It is anticipated that direct employment opportunities for about 83,000 individuals will be generated during the scheme period, with additional indirect employment.

KIRTI Programme

Why in the News?

Recently, Ministry of Youth Affairs and Sports inaugurated the unique Khelo India Rising Talent Identification (KIRTI) programme.

About KIRTI programme

Source: Zeenews

Aspect	Details
Description	i) KIRTI is part of the flagship Central Sector Scheme called Khelo India. ii) It is scouting and training programme to build a culture of sports and also create a cradle of talent that can win India medals at global competitions.
Aim	Scout talent among school-goers between the age of 9 and 18 years
Objective	i) To hunt talent from every nook and corner of the country ii) To use sports as a tool to curb addiction towards drugs and other gadgetry distractions
Concerned Ministry	Ministry of Youth Affairs and Sports
Features	i) KIRTI aims to conduct 20 lakh assessments across the country throughout the year to identify talent through notified Talent Assessment Centres. ii) KIRTI is launched across 50 centres in India. Fifty thousand applicants are being

	assessed in the first phase across 10 sports, including athletics, boxing, wrestling, hockey, football and wrestling. iii) KIRTI's athlete-centric programme is conspicuous by its transparent selection methodology based on Information Technology. iv) Data analytics based on Artificial Intelligence is being used to predict the sporting acumen in an aspiring athlete.

PM-SURAJ portal

Why in the News?

The Prime Minister recently launched the 'Pradhan Mantri Samajik Utthan and Rozgar Adharit Jankalyan' (PM-SURAJ) portal.

About the PM-SURAJ portal

Nodal ministry– Ministry of Social Justice and Empowerment

1. This portal will provide credit support to entrepreneurs from disadvantaged sections of society.

2. The portal will serve as a one stop point for individuals from marginalized communities to easily apply for and track the status of various loan and credit programs they are eligible for.

3. Credit support will be offered nationwide to eligible individuals through banks, **Non-Banking Financial Company**-Micro Finance Institutions (NBFC-MFIs), and other organizations.

4. Through this initiative, the Prime Minister approved credit support for one lakh entrepreneurs from disadvantaged sections.

NFECS and NECCE program launched

Why in the News?

Figure 35.Source- The Indian Express

The Ministry of Women and Child Development has launched a National Curriculum for Early Childhood Care and Education (NECCE) for children aged three to six years.

Additionally, they have launched a National Framework for Early Childhood Stimulation (NFECS) for children from birth to three years.

About NFECS and NECCE

Aspect	NFECS (National Framework for Early Childhood Stimulation)	NECCE (National Curriculum for Early Childhood Care and Education)
Age Group	Children from birth to three years	children from age three to six

Aim	Empower caregivers and Anganwadi Workers for early stimulation and learning to support children's optimal development.	Improve early childhood care and education at Anganwadi Centres. It aligns with the National Curriculum Framework for Foundational Stage 2022 (NCF-FS).
Developmental domains covered	Physical, thinking, language, social-emotional, cultural/aesthetic, good habits	Physical, thinking, language, social-emotional, cultural/aesthetic, good habits
Methodology	Attentive care, early learning opportunities	Lesson plans based on skills, fun learning, readiness for primary school
Activities	36 month-wise age-based activities	Weekly plan with 36 weeks of learning, 8 weeks of review, and 4 weeks of introduction
Special Attention	It emphasizes serve and return, caregiver actions: love, talk, play, and positive guidance	Screening, inclusion and referrals of Divyang children in every activity

Note- Both documents are created by the National Institute for Public Cooperation and Child Development (NIPCCD) and will be incorporated into the Poshan Tracker. NIPCCD will conduct training sessions for Anganwadi workers on the new Curriculum and Framework.

Subject: Reports & Indices

India was the top arms importer in 2019-2023: SIPRI

Why in the News?

According to the latest data from the Stockholm International Peace Research Institute (SIPRI), India was the world's leading arms importer for the period 2019-2023. India's arms imports saw a 4.7% increase compared to the period from 2014 to 2018.

What are the key findings?

1. Russia remains India's top supplier– Russia is still India's main arms supplier, making up 36% of imports. However, it's the first time since 1960-1964 that Russia's deliveries comprised less than half of India's arms imports in a five-year period.

Note– After Russia, France (33%) stands as India's second-largest arms supplier, while the US (13%) ranks as the third-largest provider of weapons to India.

2. Asia and the Middle East are the leading importers– In 2019-2023, nine of the top ten arms importers, including India, Saudi Arabia, and Qatar, were from Asia, Oceania, or the Middle East.

3. Increase in European arms imports
a. The report shows a notable 94% rise in European arms imports from 2014-2018 to 2019-2023 which is likely due to the ongoing conflict in Ukraine.
b. In 2019-2023, European countries imported over half of their arms, 55%, from the U.S., which increased from 35% in 2014-2018.

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4. U.S. and France top arms exports– The United States, the biggest arms supplier globally, experienced a 17% increase in exports from 2014-2018 to 2019-2023. Meanwhile, France became the world's second-largest arms supplier, with exports growing by 47%.

Food Waste Index Report 2024

Why in news?

Food Waste Index Report 2024, was launched by the United Nations Environment Programme (UNEP) and WRAP (Waste and Resources Action Programme).

Findings of the report

1) According to the Food Waste Index Report 2024, households across the globe wasted over one billion meals a day in 2022.

2) Whereas, 783 million people struggled with hunger and a third of humanity faced food insecurity.

3) In 2022, 1.05 billion tonnes of food waste generated (including inedible parts) which amounts to 132 kilograms per capita and almost one-fifth of all food available to consumers.

4) Out of the total food wasted in 2022, 60% happened at the household level, with food services responsible for 28%, and retail 12%.

5) Many low- and middle-income countries continue to lack adequate systems for tracking progress to meet Sustainable Development Goal 12.3 of halving food waste by 2030, particularly in retail and food services.

6) It was found that food waste is not a "rich country problem". Difference between average levels of household food waste for high-income, upper-middle, and lower-middle-income countries, was just 7 kg per capita.

8) Hotter countries appear to generate more food waste per capita in households. It is potentially due to higher consumption of fresh foods with substantial inedible parts and a lack of robust cold chains.

9) The report found that food loss and waste generated "8%-10%" of annual global greenhouse gas (GHG) emissions (almost five times that of the aviation sector).

The cost of both food loss and waste for the global economy was at $1 trillion.

10) As compared to urban areas, rural ones generally wasted less food, due to "greater diversion of food scraps to pets, livestock, and home composting".

India TB report 2024

Why in the News?

Recently, the Union Health Ministry released the India TB report 2024.

Findings of the report

1) Since 2015, there has been a decline of 16% in TB incidence (new cases emerging each year) and an 18% reduction in mortality due to TB.

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2) The incidence rate in India has fallen from 237 per lakh population in 2015 to 199 per lakh population in 2022, while the mortality rate has declined from 28 per lakh population in 2015 to 23 per lakh population in 2022.

3) Nearly 32% of TB notifications in 2023 came from the private health care sector, which is an increase of 17% from the previous year.

4) While the overall notification of TB cases has improved by over 50% in the last nine years on an annual basis, Uttar Pradesh saw the highest jump in notifications (by 21% compared to the previous year) followed by Bihar (15%).

Subject: Art & Culture

Kochrab Ashram

What is the News?

Prime Minister Narendra Modi inaugurated the redeveloped Kochrab Ashram in Ahmedabad, Gujarat to mark the 94th anniversary of the Dandi March.

About Kochrab Ashram
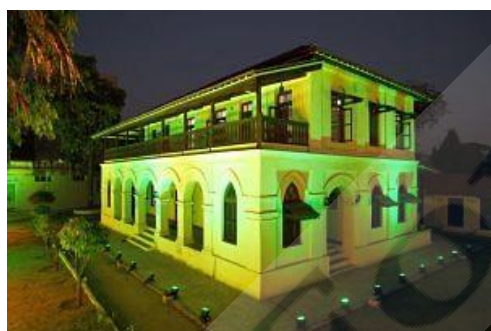

Figure 36.Source: The Print

1. About:

i) Kochrab ashram is located in Kochrab village, Ahmedabad, Gujarat.

ii) It is the first ashram established by Mahatma Gandhi upon his return to India from South Africa in 1915.

iii) It is also called as Satyagraha Ashram based on his ideas of achieving India's independence from British rule through peaceful methods.

2. History:

i) Upon returning to India from South Africa, Mahatma Gandhi initiated his association with Ahmedabad.

ii) In 1915, he settled in Ahmedabad emphasizing that as a Gujarati, he could best serve the country through the Gujarati language.

iii) On May 20, 1915, Gandhi took up residence in a bungalow located in Kochrab village later renamed it as Satyagraha Ashram.

iii) The bungalow was generously provided by Jeevanlal Desai who was a fellow lawyer and colleague of Gandhi.

iv) Mahatma Gandhi based himself here for about one-and-a-half years before moving to the new campus of Sabarmati Ashram.

3. **Appearance:** It is a colonial-style building with a white-washed façade.

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4. **Significance:** The ashram holds a historical significance:

i) The ashram also served as the starting point for Gandhi's advocacy of khadi, equality for the poor, Hindi as the national language, self-reliance, and independence.

ii) It also served as a communal living space promoting self-improvement and community service.

Pandavula Gutta- Geo-heritage site

Why in the News?

Pandavula Gutta has recently gained official recognition as the exclusive Geo-heritage site in Telangana.

What is Pandavula Gutta?

Figure 37.Source- The Hindu

1. About– It is an ancient geological marvel older than the Himalayas.

2. Location– It is located in Jayashankar Bhupalpally district in Telangana.

3. Discovery– The discovery of this site dates back to 1990.

4. Features:
a. The site is rich in paintings, rock shelters, and evidence of habitation, spanning from the Mesolithic to medieval periods.

b. The paintings exhibit geometric designs and impressions using green, red, yellow, and white pigments.
c. The rock art paintings show animals such as bison, antelope, tiger, and leopard. They also feature shapes like the swastika symbol, circles, squares, as well as weapons like bows, arrows, swords, and lances.

What are Geo-heritage sites?

1. About– Geo-heritage encompasses geological features that hold either intrinsic or cultural importance. It provides valuable insights into the Earth's evolution or history for earth science or educational purposes.

2. Designated by– Geological Survey of India (GSI)

3. Protection– India, a member of the UNESCO Convention concerning the **Protection of the World Cultural and Natural Heritage**, safeguards these sites with appropriate laws, following global standards.

900-year-old Chalukyan inscription

Why in the News?

A 900-year-old Kannada inscription from the Kalyana Chalukya dynasty has been found at Gangapuram, a temple town, in Telangana.

About Chalukya Dynasty

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1. The Chalukya dynasty ruled large parts of southern and central India between the 6th and 12th centuries. During this period, they ruled as three related yet individual dynasties:

i) Badami Chalukyas: The earliest Chalukyas, with their capital at Badami (Vatapi) in Karnataka. They rose to prominence during the reign of Pulakeshin II and began to assert their independence after the decline of the Kadamba kingdom of Banavasi.

ii) Eastern Chalukyas: They emerged in the eastern Deccan after the death of Pulakeshin II. Their capital was Vengi, and they ruled until about the 11th century.

iii) Western Chalukyas: They were the descendants of the Badami Chalukyas. They emerged in the late 10th century and ruled from Kalyani (modern-day Basavakalyan).

About Kalyani Chalunkyas

1. Dynasty and Capital:
a) The Chalukyas of Kalyani belong primarily to a Kannadiga dynasty, also known as western chalukyas. They were known after their capital city, Kalyani, which is present in the modern-day Bidar district of Karnataka.

2. Establishment and Expansion:
a) The empire was established by Tailapa II.

b) During their 300-year rule in the western Deccan and southern part of the Indian peninsula, the Chalukyas of Kalyani expanded and reached the zenith of power.

3. The most successful period of the later Chalukya rulers in Karnataka's history is often referred to as the 'Chalukya Vikrama era'.

4. Vikramaditya VI (1076-1126 CE) played a crucial role during this time. He controlled feudatories in the northern region, including Kadamba Jayakesi II of Goa, Silhara Bhoja, and the Yadava King.

6. Decline:
a) After Vikramaditya VI's death, consistent confrontations with the Chola dynasty led to the decline of the Western Chalukya empire.

7. Art and architecture:

a) The Chalukyas contributed significantly to the development of Kannada and Telugu literature.

b) Their architecture, known as the 'Gadag style, bridged the gap between the Badami Chalukya architecture of the 8th century and the Hoysala architecture of the 13th century.

c) The Western Chalukyas minted punch-marked gold coins called pagodas with Kannada legends.

d) Temples built during their rule are abundant in detailed carvings and ornate sculptures, featuring themes like kirtimukha makaras, and mithuna (erotic) figures

Delisting of lost monument by ASI

Why in the news?

Archaeological Survey of India (ASI) has decided to declassify 18 monuments from protected status. This is because the national significance of monuments have diminished.

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What are Centrally protected Monuments?

The Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act) 1958 regulates the preservation of monuments and archaeological sites of national importance.

It protects monuments and sites that are more than 100 years old. This includes temples, cemeteries, inscriptions, tombs, forts, palaces, step-wells, rock-cut caves, and even objects like cannons and mile pillars ("kos minars") that may be of historical significance.

What does the "delisting" of monuments mean?

It refers to the removal of certain specific monuments and archaeological sites from the list of protected sites maintained by the Archaeological Survey of India (ASI).

Impact of delisting–

1) When a monument is delisted, it will not fall under the purview of the ASI for conservation, protection, and maintenance.

2) The monument will not receive special attention or protection from the ASI.

3) Construction-related activities that were previously restricted around the protected site can now be carried out.

What is the process of delisting?

1) **Gazette notification**-It involves a decision by the Central Government, which issues a gazette notification declaring that the monument has ceased to be of national importance.

2) **Public feedback**– A gazette notification invites public objections or suggestions within 2 months regarding the delisting of these monuments.

Subject: Geography & Places in News

Burkina Faso

Why in the News?

As per a report, 170 people were executed in an attack on 3 villages namely Komsilga, Nodin and Soroe in Yatenga province in Burkina Faso.

About Burkina Faso

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Source- BBC

Location	1. Burkina Faso lies between the Sahara desert to the north and the Gulf of Guinea to the south. 2. It is situated south of the loop of the Niger River.
Neighbours	1. Burkina Faso shares borders with six neighbouring countries: Benin, Ivory Coast, Ghana, Mali, Niger, Togo. 2. It has no coastline or maritime claims.
Capital	Ouagadougou
Terrain	1. Most of central Burkina Faso is a savanna plateau. 2. The plateau features fields, brush, and scattered trees. 3. The highest peak in Burkina Faso is Ténakourou.
Language	1. Burkina Faso is a multilingual country. 2. It boasts a rich linguistic tapestry with approximately 70 languages spoken, of which about 66 are indigenous.
Religion	Majority of the people in Burkina faso follow Islam.
International Affiliation	1. Burkina Faso enjoys good relations with the European Union. 2. Burkina Faso is a member of the ICC and has a bilateral immunity agreement with the United States military, as covered under Article 98.
Distant features	1. Burkina Faso is home to several game preserves, including Arly, Nazinga, and W National Park. 2. These preserves harbor diverse wildlife, including lions, elephants, hippopotamuses, monkeys, common warthogs, and antelopes. 3. The endangered painted hunting dog (Lycaon pictus) was once found in Burkina Faso but is now considered extirpated.

Agalega Atoll (Mauritius)

Why in the News?

Recently, Prime Minister Narendra Modi and Prime Minister Pravind Jugnauth of Mauritius jointly inaugurated an airstrip and a jetty that India has built on Agalega atoll.

About Agalega Atoll (Mauritius)

Figure 38.Source- greatgameindia

1. Agalega is a tiny atoll in the Western Indian Ocean.

2. This atoll comprising two islands, North and South Agalega, separated by a short channel.

3. This atoll, located 684 miles (1,122 km) northeast of mainland Mauritius

4. The only town on the island is called Vingt-Cinq which means 25 in French, referring to the number of lashes the slaves would receive as punishment.

5. The 12 km-long and 2 km-wide northern island has a small airstrip which used to be occasionally visited by Coast Guard planes and helicopters.

6. Agalega is known for its production of

coconuts and is also home to the Agalega day gecko.

INS Jatayu: India's new naval base in Lakshadweep

Why in the News?

The Indian Navy will officially commission Naval Detachment Minicoy as INS Jatayu on March 6, 2024.

What is INS Jatayu?

1. About:
a. INS Jatayu is the second Naval base in Lakshadweep after INS Dweeprakshak in Kavaratti, which was commissioned in 2012.
b. The existing Naval Detachment Minicoy, which is under the operational command of the Naval Officer-in-Charge (Lakshadweep), will be commissioned as INS Jatayu.
Note– Naval Detachment Minicoy was set up in the 1980s.

2. Facilities– A naval detachment provides administrative, logistics, and medical support. INS Jatayu will become a naval base with more facilities like an airfield, housing, and personnel once it gets the necessary clearances.

What is its Significance?

1. Strategic location– The establishment of INS Jatayu enhances Navy surveillance and operations. Situated on Lakshadweep's southernmost island, Minicoy, overlooks vital Sea Lines of Communication (SLOCs) in the Arabian Sea. It provides a strategic vantage point for monitoring maritime traffic.

Note– Sea Lines of Communication (SLOCs)– It refers to the main maritime routes between ports, essential for trade, logistics, and naval activities.

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2. Maritime Security and Operational Range– The commissioning of INS Jatayu broadens the Navy's operational range, enhancing anti-piracy and anti-narcotics efforts in the Western Arabian Sea. It underscores India's commitment to maritime security in a vital area for global trade and energy supplies.

3. Geopolitical dynamics– Given the changing geopolitical landscape, especially China's growing influence in the Indian Ocean region, the establishment assumes greater significance.

About the Lakshadweep Islands

Figure 39.Source- Royal Maldives family

1. Lakshadweep archipelago consists of 36 islands situated between 220 km and 440 km from Kochi. Only 11 of these islands are inhabited, covering a total area of just 32 sq km.

2. The Lakshadweep islands are part of a series of coral islands in the Indian Ocean, stretching southward to the Maldives and the Chagos archipelago beyond the equator.

3. Minicoy, the southernmost island of Lakshadweep, lies along crucial Sea Lines of Communication (SLOCs), the main global maritime pathways. These include the Eight Degree Channel (between Minicoy and Maldives) and the Nine Degree Channel (between Minicoy and the main Lakshadweep islands).

India's first underwater Metro line

Why in the News?

Prime Minister Narendra Modi recently inaugurated India's first underwater metro line in Kolkata.

About India's first Underwater Metro line

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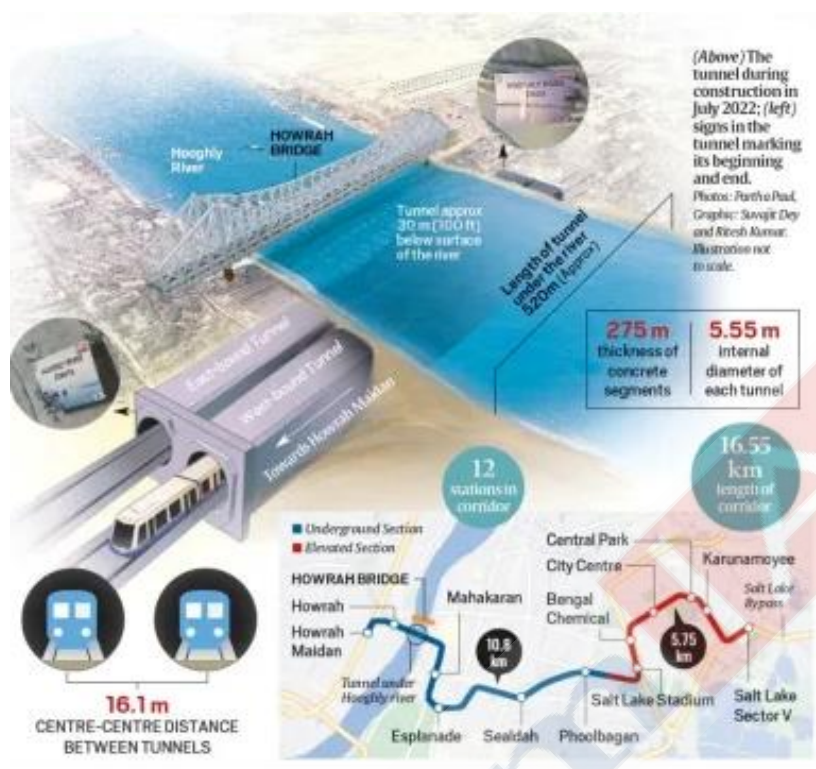
Source- The Indian Express

1. About– This underwater Metro line is a part of the Howrah Maidan-Esplanade section of Kolkata Metro's East-West corridor.

2. Length of the section– Howrah Maidan-Esplanade section is 4.8 km long and goes under the Hooghly River through India's first underwater transportation tunnel.

3. Tunnel specification-The tunnel is 13 meters below the riverbed and 33 meters below ground level. Its total length is 520 meters.

4. Connecting Places– This section connects Kolkata and Howrah, located on the east and west banks of the Hooghly River, respectively.

5. Deepest metro Station-This section will also have the distinction of having the deepest metro station in India at Howrah, which is 30 meters deep.

History of Kolkata Metro

1. About-It is India's first rapid transit system, serving Kolkata and the wider Kolkata Metropolitan Region in West Bengal.

2. Started & Current Status– It was first operationalized in 1984. As of January 2023, it is the second busiest and fourth longest metro network in India.

Key facts about Hooghly River

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Source- TimesofIndia

1. About– The Hooghly River, also called the Bhagirathi-Hoogly and Kati-Ganga River, is a major river in West Bengal.

2. Length– It is a branch of the Ganges River, spanning approximately 260 kilometers.

3. Course:
a. It originates in Murshidabad, where the Ganga River divides into two branches.
b. The branch that flows through Bangladesh is known as the Padma, while the other branch, the Hooghly, flows through a densely industrialized region of West Bengal.

4. Rivers drain into Hooghly– Ajay, Falgu, Jalangi and Churni to the north and Rupnarayan, Mayurakshi, Damodar and Haldi to the south.

5. Important cities near it– Jiaganj, Azimganj, Murshidabad, and Baharampur.

Desert star dunes

What is the News?

Scientists unveiled the first in-depth study of star dunes, revealing the internal structure of these geological features.

About Sand Dunes

Figure 40.Source- LotusArise

1. About: Star dunes are the tallest and most complex type of desert sand formations.

They reach hundreds of meters in height and are characterized by their pyramidal forms and radiating arms.

Star dunes are pyramid-shaped sand formations with arms stretching out from a central peak. This gave them a star-like appearance when viewed from above.

2. **Locations:** Star dunes comprise about 10% of desert dunes on Earth. These dunes are found in various deserts across the globe, including the sand seas of Africa, Arabia, China, Saudi Arabia, North America, and even on Mars and Saturn's moon Titan.

Findings of the study

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i) The study focused upon a star dune named Lala Lallia in eastern Morocco, located within the Sahara Desert.

ii) Researchers utilized ground-penetrating radar and luminescence dating to estimate the formation time of Lala Lallia, relying on energy trapped within sand grains.

iii) The findings suggest that Lala Lallia took approximately 900 years to form, accumulating approximately 6,400 metric tons of sand annually as wind carries it across the desert.

Anthropocene epoch declaration rejected

Why in the News?

Recently, a committee of 18 scientists have voted against the proposal to declare the start of the Anthropocene or Human Epoch in the geological time scale.
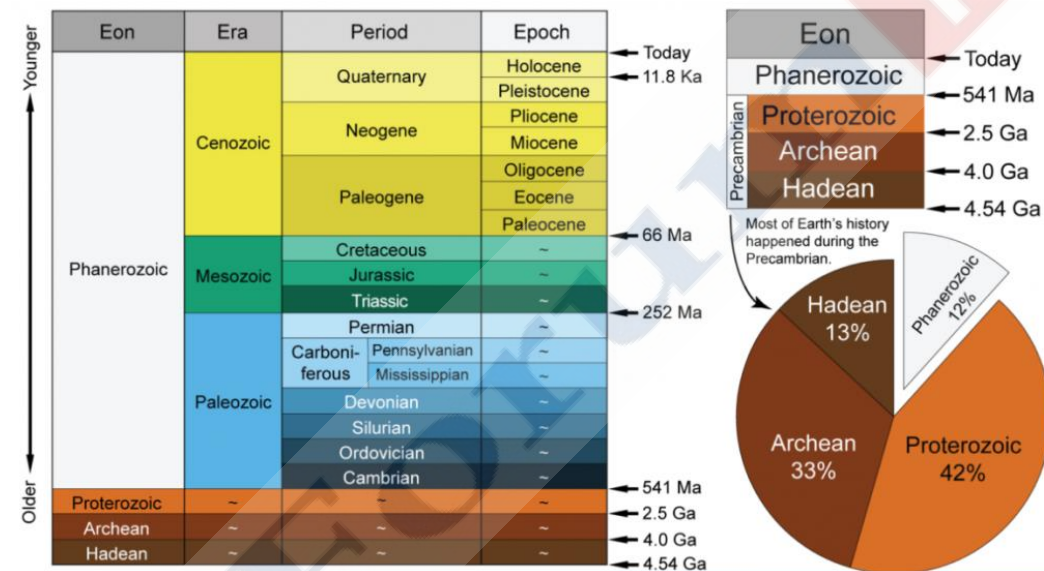
What is Geological time scale (GTS)?

Figure 41.Source- earthhome.org

1. About:
a. Scientists have designed it to measure the history of planet Earth.
b. GTS organizes Earth's history into different sections like aeons, eras, periods, epochs, and ages. It begins with Earth's formation and arranges them from longest to shortest durations.

2. Chronostratigraphic classification– The GTS is based on chronostratigraphic classification. **Note**– Stratigraphy is the branch of geology that focuses on studying rock layers, while chronostratigraphy specifically examines how these layers relate to the measurement of geological time.

3. Present Geological time scale– We currently live in the Phanerozoic aeon, within the Cenozoic era, the Quaternary period, the Holocene epoch, and the Meghalayan age.

Why the proposal of Human epoch?

1. Holocene epoch: The Holocene epoch started 11,700 years ago, at the end of the Last Glacial Period (LGP). All recorded human history falls within this epoch.
Note- During the Last Glacial Period (LGP), about 25% of Earth's land was under glaciers, sea levels were up to 400 feet lower, and temperatures dropped to 8 degrees celsius on average.

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2. Anthropocene proposal– The Anthropocene concept suggests that human activities have changed the Earth so much that a new geological epoch has started.

What is Anthropocene epoch?

1. Term coined-The term Anthropocene was coined in 2000 by Dutch meteorologist Paul Crutzen and American botanist Eugene Stoermer.

2. Starting of Anthropocene epoch:
a. The Anthropocene Working Group (AWG), consisting of 37 researchers, started discussions in 2009 to determine the beginning of the epoch. After several years of discussion, they settled on 1952 as the starting point.
b. The period after World War II is seen as the "Great Acceleration" during which, there was a surge in human population, fossil fuel consumption, nuclear testing fallout, widespread use of nitrogen-based fertilizers, and increased prevalence of plastics.
c. The AWG submitted its proposal to the International Union of Geological Sciences (IUGS) in 2023. The Subcommission on Quaternary Stratigraphy (SQS), a body of the International Commission on Stratigraphy, voted on the proposal, and rejected it.

Why the scientists rejected this proposal ?

1. Contention on starting date– The proposal identified 1952 as the beginning of the Anthropocene, citing the global plutonium fallout from nuclear weapons tests. Opponents contend that human impact began earlier, including activities like farming, and cannot be confined to a single date.

2- Epoch definition standards– The IUGS committee found that adding an Anthropocene epoch and ending the Holocene didn't match the usual standards for defining epochs using chronostratigraphy.

Sela Tunnel

Why in the News?

Prime Minister Narendra Modi recently inaugurated the strategically significant Sela Tunnel in Arunachal Pradesh.

About Sela Tunnel

Figure 42.Source- Tripoto

Location– The tunnel is situated at an altitude of 13,700 feet in the West Kameng district of Arunachal Pradesh, on the Balipara-Chariduar-Tawang road connecting Tezpur (Assam) to Tawang (Arunachal Pradesh).

Built by– Border Road Organisation.

Project details:
a. It is world's longest twin tunnel built at an altitude of above 13,000 feet.
b. It consists of two tunnels-
Tunnel 1, a single tube tunnel spanning 980

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meters

Tunnel 2, a twin tube tunnel covering 1555 meters. Tunnel 2 has one tube for traffic and another for emergencies.

c. The tunnel was constructed using the New Austrian Tunneling Method (NATM).

What is its Significance?

1. All weather connectivity– It is the highest tunnel in the country. It provides all-weather connectivity to Tawang via the Sela Pass, as well as to other nearby areas along the border with China near the Line of Actual Control (LAC).

2. Travel time reduction– The tunnel will reduce the travel time from Tezpur to Tawang by over an hour. Travellers can avoid the risky snow-covered Sela top, which sits at 13,700 feet altitude.

Darien Gap

Why in the News?

Illegal immigration to the US has in recent weeks moved its focus south to the Darien Gap.

About Darien Gap

Figure 43Source: Down to Earth

1. The Darien Gap is a stretch of densely forested jungle across northern Colombia and southern Panama.

2. It is roughly 60 miles (97 kilometres) across. The terrain is muddy, wet and unstable.

3. It has become a major route for global human migration despite of no paved roads exist in the Darien Gap.

4. The Darién Gap is home to the Embera-Wounaan and Guna indigenous peoples. It was also inhabited by the Cueva people, who became extinct after the Spanish invasion of Panama in 1535.

5. Maize, cassava, plantains, and bananas are staple crops grown by local farmers in the region.

Shipra River

Why in the News?

Recently, a performance audit was conducted by the Comptroller and Auditor General of India (CAG) on the degradation of the Shipra River.

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About Shipra River

1. **Location:** The Shipra River (also known as the Kshipra) is a river in Madhya Pradesh.

2. **Type:** It is a perennial river and is considered as sacred as the Ganga River by the Hindus.

3. **Origin:**

a) The Shipra River originates in the Vindhya Range from a hill called Kakri-Tekdi, situated approximately 11 kilometers north of Ujjain in Madhya Pradesh.

b) This perennial river flows across the Malwa Plateau and eventually joins the Chambal River.

c) Kahn and Gambhir are its major tributaries.

4. **Religious Significance**:

a) According to ancient Hindu texts (the Puranas), the Shipra River is believed to have sprung from the heart of Varaha, an incarnation of Lord Vishnu in the form of a boar.

b) Along the banks of the Shipra lies the ashram (hermitage) of Sage Sandipani, where Lord Krishna, the eighth incarnation of Lord Vishnu, received his education.

c) The holy city of Ujjain, situated on the right bank of the Shipra, hosts the famous Kumbha Mela (Sinhastha fair). Pilgrims gather on the city's elaborate riverside ghats to celebrate the river goddess Kshipra.

d) The Shipra River also finds mention in Buddhist and Jain texts.

Gulf of Tonkin

Why in the News?

Vietnam urges respect for international law after China sets a baseline in the Gulf of Tonkin. This action sparks concerns due to overlapping claims in the South China Sea. However, historically, both countries have maintained friendly relations in the Gulf of Tonkin.

> **Baselines**
> Baselines are imaginary lines along the coast used to measure the extent of a country's territorial sea and other maritime zones, like territorial waters and **exclusive economic zones.**

About Gulf of Tonkin

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Source- ResearchGate

1. Location– It is a shallow, crescent-shaped body of water located in the northwest part of the **South China Sea**. It is known as "Beibu Gulf" in Chinese and "Bac Bo Gulf" in Vietnamese.

2. Borders– The gulf is bordered by the northern coast of Vietnam to the west and northwest, China's Guangxi Zhuang Autonomous Region to the north, and the Leizhou Peninsula and Hainan Island to the east.

3. Rivers that drain into it– The Gulf of Tonkin receives water from multiple rivers, primarily the Red River (referred to as the Yuan River in Chinese), along with several smaller rivers.

4. Connection– It connects to the South China Sea through its southern mouth and the Hainan Strait (Qiongzhou Strait) to the northeast.

5. Major Ports– In Northern Vietnam, the primary ports along the gulf are Haiphong and Ben Thuy. In China, the major port is Beihai (Pakhoi).

6. Historical incident– The Gulf of Tonkin incident in 1964 increased U.S. involvement in the Vietnam War.

Barberton Greenstone Belt

Why in the News?

Recently, scientists discovered evidence of some of the earliest recorded earthquakes in the Barberton Greenstone Belt.

About Barberton Greenstone Belt

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Source- Wikipedia

Location– It is located on the eastern boundary of the Kaapvaal Craton in South Africa.

Significance

1. It is renowned for its gold deposits and for its komatiites, an uncommon type of ultramafic volcanic rock named after the Komati River that traverses the belt.

2. The Barberton Greenstone Belt in the Eswatini–Barberton areas contains some of the oldest exposed rocks on Earth, dating back over 3.6 billion years.

3. These rocks also preserve some of the earliest evidence of life on Earth, second only to the Isua Greenstone Belt in Western Greenland.

4. The Makhonjwa Mountains constitute 40% of the Barberton belt.

Note– The Barberton Greenstone Belt's outcrops were added to UNESCO's World Heritage Sites list in 2008 under the name 'Barberton Makhonjwa Mountains'.

What are ultramafic rocks?

Figure 44.Source- Wikipedia

1. About– Ultramafic (or ultrabasic) rocks are dark-colored igneous and meta-igneous rocks. Ultramafic rocks are predominantly found in orogenic belts, where mountains are formed.

2. Composition– They mostly consist of over 90% mafic minerals, with high levels of magnesium oxide (more than 18% MgO) and iron oxide (FeO). They have low silica (less than 45%) and potassium content.

3. Significance– It is believed that the Earth's mantle is made up of ultramafic rocks.

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Afanasy Nikitin Seamount (AN Seamount)

Why in the News?

Recently, India applied for rights to explore two vast tracts in the Indian Ocean seabed. The application to explore the Afanasy Nikitin Seamount (AN Seamount) is advantageous for India.

About Afanasy Nikitin Seamount (AN Seamount)

Figure 45Source: The Hindu

1. It is a major seamount in the central Indian Ocean Basin. It is located about 3,000 km away from India's coast.

2. It reaches up to about 1,200 meters, rising from an oceanic depth of around 4,800 meters.

3. It is rich in deposits of cobalt, nickel, manganese and copper.

4. **Laws related to extraction:**

a) For doing extraction in this region, countries must apply first for an exploration licence to the ISBA. These rights to extraction are applied to areas that are part of the open ocean.

b) Open ocean means ocean (including air, surface and seabed) where no countries can claim sovereignty.

c) Around 60% of the world's seas are open ocean and believed to be rich in a variety of mineral. However, the costs and challenges of extraction are prohibitive.

d) Currently, no country has commercially extracted resources from open oceans.

e) **Exclusive rights:** Countries have exclusive rights up to 200 nautical miles, and its underlying sea-bed from their borders.

Note: The Commission on the Limits of the Continental Shelf is a UNCLOS-linked body. It decides on the limits of a country's continental shelf.

50,000-year-old magnetofossil

Why in the News?

Recently, scientists have found 50,000-year-old magnetic fossils in the Bay of Bengal. It is one of the youngest giant magnetofossils to be found yet.

About the magneto fossil

1. About: Magnetofossils are the fossilised remains of magnetic particles.

They are created by magnetotactic bacteria, also known as magnetobacteria.

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2. Magnetotactic bacteria are mostly prokaryotic organisms that arrange themselves along the earth's magnetic field. These unique creatures were first described in 1963.

3. These organisms were believed to follow the magnetic field to reach places that had optimal oxygen concentration.

4. It was found that the bacteria contained novel structured particles in small sacs that essentially worked as a compass. They are rich in iron.

5. These magnetotactic bacteria create tiny crystals made of the iron-rich minerals magnetite or greigite. The crystals help them navigate the changing oxygen levels in the water body in which they live.

6. The fossils left behind by the crystal-creating bacteria help scientists collect information regarding the conditions that prevailed millions of years ago, and which contributed to "the sediment magnetic signal"

Findings of the study

1. The sediment core from the southwestern Bay of Bengal consisted mainly of pale green silty clays.

2. There is presence of 'conventional' magnetofossils along with giant ones.

3. At a depth of around 1,000-1,500 m, the Bay of Bengal has a distinctively low oxygen concentration.

4. The rivers Godavari, Mahanadi, Ganga-Brahmaputra, Cauvery, and Penner played a crucial role in the formation of the magnetofossils.

5. Nutrient-rich sediments from rivers introduced reactive iron to the Bay of Bengal along with organic carbon in low-oxygen conditions, which supported growth of magnetotactic bacteria.

6. The freshwater discharge from these rivers along with the other oceanographic processes, like eddy formation, provided the oxygen content in these waters that isn't usually found in other low-oxygen zones.

Subject: Defence Exercise

Sea Defenders-2024

Why in the News?

The United States Coast Guard's (USCG) Bertholf ship reached Port Blair ahead of the 'Sea Defenders-2024' joint exercise.

What is Sea Defenders-2024?

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Source- Zee Business

1. About– It is a joint exercise between the Indian Coast Guard (ICG) and the United States Coast Guard (USCG).

2. Location– It is scheduled to take place on March 9-10 near Port Blair's coast of Andaman and Nicobar Islands.

3. Focus of the Joint Exercise: Maritime piracy and other threats, simulated drone attacks on merchant ships, joint search and rescue at sea, firefighting, pollution response, and counter-drug operations.

4. Emergency preparedness-The event will also include a simulated medical evacuation to improve preparedness in emergency situations

Exercise Tiger Triumph – 24

Why in the News?

India and the United States will conduct a bilateral tri-Service Humanitarian Assistance and Disaster Relief (HADR) Exercise called Tiger Triumph – 24. It will take place on the Eastern Seaboard from March 18 to March 31, 2024.

> **Exercise Tiger Triumph**
> **About**– It is the first tri-service military exercise between India and USA. India has previously conducted tri-service exercises only with Russia.
>
> **First edition**– 2019

About Exercise Tiger Triumph-24

1. Aim– The exercise aims to improve cooperation between the forces of both countries in conducting HADR operations and to refine Standard Operating Procedures (SOPs) for smoother coordination.

2. Phases of the exercise– The exercise will be conducted in two phases– Harbour Phase and Sea phase
a. Harbour Phase– It will be carried out at Visakhapatnam. Personnel from both navies will engage in Training Visits, Subject Matter Expert Exchanges, Sports Events, and Social interactions during this time.
b. Sea Phase– It will be carried out at Kakinada district of Andhra Pradesh. After the Harbour Phase, the ships, carrying troops, will sail for the Sea Phase and conduct Maritime, Amphibious, and HADR operations based on given scenarios.

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Subject: Miscellaneous

March 14-Pi day

Why in the News?

March 14 is celebrated worldwide as Pi Day, commemorating the well-known approximation (3.14) of the mathematical constant Pi. On Pi Day, mathematicians raise awareness about their field through lectures, museum exhibits, and pie-eating contests

Why March 14?

1. The value of Pi is approximately 3.14 or expressed as the fraction 22/7.

2. When the date is written in the month/day format (3/14), it corresponds to the first three digits of this mathematical constant.

History of its celebration

1. Physicist Larry Shaw marked the first Pi Day celebration in 1988 at the San Francisco Exploratorium.

2. In 2009, The U.S. House of Representatives designates March 14 (3/14) as National Pi Day.

3. In 2019, UNESCO's 40th General Conference officially recognized Pi Day as the International Day of Mathematics.

What is Pi (π)?

1. Pi, often denoted by the Greek letter π, is a well-known mathematical constant.

2. It signifies the ratio of a circle's circumference to its diameter, which remains constant regardless of the circle's size.

3. Pi is an irrational number, meaning it has an infinite decimal expansion without any repeating pattern.

Discovery of Pi

1. Pi has been known for nearly 4,000 years and was discovered by the ancient Babylonians and ancient Egyptians.

2. Greek mathematician Archimedes of Syracuse (287 B.C. to 212 B.C.) was among the earliest to calculate pi.

3. The mathematical constant pi is represented by the symbol 'π,' which was created by British mathematician William Jones in 1706.

Applications: Pi finds utility in a broad array of mathematical and scientific computations, encompassing fields such as geometry, trigonometry, calculus, and beyond.

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World Monuments Fund Watch 2025

Why in the News?

Conservationists plan to propose the Kazhuveli watershed region in Villupuram district, Tamil Nadu, for nomination to the World Monuments Fund Watch 2025 programme.

About World Monuments Fund Watch 2025 programme

1. About: World Monuments Fund is a private, international, non-profit organization dedicated to the preservation of historic architecture and cultural heritage sites around the world through fieldwork, advocacy, grantmaking, education, and training

It is a nomination-based programme that connects local heritage preservation to global awareness and action.

2. Origin: It was launched in 1996. It is a biennial program.

3. Significance: It provides a critical platform to raise awareness of and support for heritage places of global significance that are facing pressures relating to the most important global issues of our time. The issue ranges from climate change and under representation to recovery from crisis and beyond.

Nana Jagannath Shankarseth

Why in the News?

The Maharashtra government recently requested the Ministry of Railways to rename Mumbai Central station after Nana Jagannath Shankarseth.

Who was Nana Jagannath Shankarseth?

About:
a. He was often called the "architect" of Mumbai (previously Bombay) and was recognized as a social reformer, educator, and philanthropist.
b. He provided invaluable contributions, both ideologically and financially, across numerous sectors, establishing a robust foundation for the city.

Birth– He was born (February 10, 1803) in a wealthy Brahmin family in Murbad,Thane district ,Maharashtra.

Inspired by– He was deeply influenced by the renowned merchant and philanthropist Sir Jamsetjee Jeejeebhoy.

Political journey– He was the first Indian to be appointed to the Legislative Council of Bombay.

Figure 46Source- The Indian Express

What are Shankarseth's main contributions?

Education:

1. Shankarseth was dedicated to expanding education in Bombay and donated his family's land for educational purposes.

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2. He established the Native School of Bombay, later known as the Bombay Native Institution and then the Board of Education. Eventually, it became the renowned Elphinstone College.

Museum, Temples:

1. Shankarseth was one of the wealthy donors who supported the development of the Dr. Bhau Daji Lad Museum in Byculla, which was designed by a renowned architect from London.

2. The Bhawani Shankar Temple near Nana Chowk was built by Shankarseth in honor of his late mother, Bhawanibai Murkute.

Railways:

1. The first train journey in India took place on April 16, 1853, between Boribunder and Thane, covering a 34-km route managed by the Great Indian Peninsular Railway Company.

2. Sir Jamsetjee Jeejeebhoy and Nana Shankarseth were part of the committee overseeing the project.

Usha Mehta-Indian Freedom Fighter

Why in the News?

The film "Ae Watan Mere Watan," centered on the life of Indian freedom fighter Usha Mehta, has recently been released.

About Usha Mehta

Figure 47.Source- India Today

1. Birth– Usha Mehta was born in 1920 in the village of Saras, near Surat in Gujarat.

2. Mahatma Gandhi follower– She followed Gandhi's principles and was often called Ushaben.

3. Role in Indian Freedom struggle:
a. When she was eight years old in 1928, she joined a protest march against the Simon Commission.
b. On August 14, 1942, she and her associates set up the Secret Congress Radio during the Quit India Movement, which began broadcasting on August 27.

4. Awarded Padma Vibhushan– In 1998, the Government of India honored her with the Padma Vibhushan, the second highest civilian award in the country.

Setting up an underground station

Background– When the World War II began in 1939, the British suspended all amateur radio licenses across their Empire. Operators were required to surrender all equipment to the authorities, facing severe punishment if they didn't comply.

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1. Congress radio station creation– Congress Radio was created during the Quit India Movement to spread the message of Independence, making it one of India's earliest radio networks. It was used by Gandhiji to promote Independence.

2. Organisers– Usha Mehta, along with Babubhai Khakar, Vithalbhai Jhaveri, and Chandrakant Jhaveri, played vital roles in organizing Congress Radio.

3. End to Congress Radio- To evade detection by the British, they regularly changed transmission locations. The operation was exposed when Nariman Printer was captured; he revealed the location of Congress Radio in exchange for immunity.

4. Congress Radio case:
a. The trial of the five accused— Usha Mehta, Babubhai Khakar, Vithalbhai Jhaveri, Chandrakant Jhaveri, and Nanak Gainchand Motwane (who sold essential equipment to the team)— stirred considerable excitement in Bombay.
b. Vithalbhai and Motwane were cleared of charges, while Mehta, Babubhai, and Chandrakant received harsh sentences.
c. Usha Mehta was freed from Pune's Yerawada Jail in March 1946 and is celebrated in nationalist media as "Radio-ben".

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