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Table of Contents

PRELIMS 4

POLITY & GOVERNANCE 4

Protection of Children from Sexual Offences (POCSO) Act 4

Global Terrorism Index 5

Unlawful Activities (Prevention) Act 6

Global Hunger Index 2023 7

Same-sex marriage case 8

INTERNATIONAL RELATIONS 10

Seventh India-EU Cyber Dialogue 10

International Criminal Court 11

Israel's Iron Dome 12

Asia-Pacific Institute for Broadcasting Development (AIBD) 13

ISRAEL-PALESTINE CONFLICT 14

Parliamentary Speakers' Summit (P20 Summit) .. 16

8th BRICS International Competition Conference 17

Indian Ocean Rim Association (IORA) 17

India and Oman 18

ECONOMY 20

TIR Executive Board (TIRExB) 20

National Investment and Infrastructure Fund 21

Card-on-file tokenization facility 21

Rural Infrastructure Development Fund (RIDF) ... 22

GEOGRAPHY 24

Hirakud reservoir 24

South Lhonak lake 25

Chungthang dam 25

Asteroid Bennu 26

Kawar Lake 27

Amazon Rainforest 28

Ring of Fire eclipse 29

Amazon River 30

Orion Nebula 31

Earth's core 31

Hurricane Otis 34

ENVIRONMENT AND ECOLOGY 35

Badis limaakumi 35

Dandeli Wildlife Sanctuary 35

Sendai Framework 36

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) 38

Methane emission 39

Ruddy Shelduck 40

Air Quality Index (AQI) 41

Regional Rapid Transit System (RRTS) 42

Buff-breasted Sandpiper 44

Green credit programme 45

SCIENCE & TECHNOLOGY 47

Nanoparticles 47

Abort Mission 1(TV-D1) 48

Stratospheric aerosol injection (SAI) 48

(CAR) T-cell therapy 49

Rasmussen's encephalitis 50

BlueWalker 3 satellite 51

Attention Deficit Hyperactivity Disorder (ADHD) 52

Exclusome 53

Nourseothricin 53

Gaganyaan 54

Laser Interferometer Gravitational-Wave Observatory (LIGO) 55

Hunter's Moon Lunar Eclipse 56

David's Sling 57

NASA's Roman Space Telescope 58

"Calixcoca" Vaccine 59

HISTORY AND ART & CULTURE 60

Matangini Hazra 60

Naganathaswamy Temple 60

Bojjannakonda 61

GOVT. INITIATIVES, SCHEMES AND POLICIES 63

National Turmeric Board 63

Intelligent Grievance Monitoring System (IGMS) 2.0 64

Swachhata Hi Seva Campaign 64

PM SVANidhi scheme 65

PM Ujjwala Yojana 66

SHRESHTA (Residential Education for Students in High Schools in Targeted Areas).....	67	2023 Nobel Prize for Medicine.....	77
Bharat NCX 2023	68	Chemistry Nobel 2023	79
Mera Yuva Bharat (MY Bharat)	69	SAMPRITI-XI	79
Intensified Mission Indradhanush (IMI 5.0)	70	5th National Water Awards 2023.....	80
Special Campaign 3.0 initiative	71	Operation Ajay	81
Pro-Active Governance and Timely Implementation (PRAGATI)	72	KatiBihu	82
Meri Maati Mera Desh campaign	72	Abu Dhabi Masters 2023	82
MISCELLANEOUS	74	Bishan Singh Bedi	83
UN Convention against Transnational Organized Crime (UNTOC)	74	MAINS	84
Udangudi Panangarupatti.....	75	PAPER I	85
Sastra Ramanujan Prize	76	PAPER II	88
Nobel Prize in Physics 2023	76	PAPER III	104
		PAPER IV	112
		PRACTICE QUESTIONS.....	115

PRELIMS



POLITY & GOVERNANCE



Protection of Children from Sexual Offences (POCSO) Act

Context: The Law Commission in its recent report on the **Protection of Children from Sexual Offences (POCSO) Act** suggested the government keep the consent age 18.

Background:-

- Headed by former Karnataka High Court Chief Justice Ritu Raj Awasthi, the Commission, in its Report No. 283 on '**Age of Consent** under the Protection of Children from Sexual Offences Act, 2012' submitted to Union Law Minister Arjun Ram Meghwal, has accordingly called for certain amendments to the Act "to remedy the situation in cases wherein there is tacit approval in fact though not consent in law on part of the child aged between 16 to 18 years".
- Stating that "it is not advisable to tinker with" the existing age of consent — 18 years — under the Protection of Children from Sexual Offences (POCSO) Act to exempt adolescent sexual acts from the purview of the criminal law, the Law Commission of India has instead favoured introducing "guided judicial discretion in the matter of sentencing" in cases involving those in the 16-18 age group.
- It says "This will ensure that the law is balanced, thus safeguarding the best interests of the child".

About the Protection of Children from Sexual Offences (POCSO) Act:-

- **Enacted: 2012.** ([National Commission for Protection of Child Rights](#))
- **Ministry: Ministry of Women and Child Development.**
- **Objectives:** to address offenses of sexual exploitation and sexual abuse of children, which were either not specifically defined or adequately penalized.

Historic Background:-

- It was enacted as a consequence of India's ratification of the **UN Convention on the Rights of the Child in 1992.**
- The POCSO Act was enacted in 2012 to **provide a robust legal framework** for the protection of children from offences of sexual assault, sexual harassment, and pornography while safeguarding the interests of children at every stage of the judicial process.
- In **2019, the Act was amended** to strengthen the penalties for specified offenses in order to deter abusers and promote a dignified upbringing.

Salient Features:-

- The Act **defines a child** as "any person" **under the age of 18.** ([Mandatory Minimum Sentencing](#))
- The Act recognizes that **both girls and boys** can be victims of sexual abuse.
- Any person in charge of an institution (excluding children) who fails to report the commission of a sexual offense involving a subordinate **faces punishment.**
- A victim may report an offense at **any time, even years after the abuse has occurred.**
- The Act **forbids the disclosure of the victim's identity** in any form of media unless authorized by the special courts established by the Act.
- The new rules include the provision of **mandatory police verification** of staff in schools and care homes, procedures to report sexual abuse material (pornography), and imparting age-appropriate child rights education among others.

- For a crackdown on child pornography, any person who has received any pornographic material involving a child or any information regarding such pornographic material shall report the contents to the **Special Juvenile Police Unit (SJPU) or police, or the cybercrime portal.**
- Under the rules, the **State Governments** have been asked to **formulate a child protection policy based** on the principle of zero-tolerance to violence against children, which shall be adopted by all institutions, organizations, or any other agency working with or coming in contact with children.
- The Central Government and every State Government shall provide **periodic training.**
- The Centre and State Governments have been asked to prepare **age-appropriate educational material and curriculum for children**, informing them about various aspects of personal safety.
- According to rules, **orientation programme and intensive courses** may also be organized for police personnel and forensic experts.
- Any institution housing children or coming in regular contact with children, including schools, crèches, sports academies, or any other facility for children must **ensure a police verification and background check** on a periodic basis of every staff.

Challenges:-

- Low Representation of Women in the Police Force.
- Lapses in the Investigation.
- No Conditions to Prove Recent Intercourse.

MUST READ: [Sexual intent is key to POCSO Act: SC](#)

SOURCE: [THE INDIAN EXPRESS](#)

Global Terrorism Index

Context: A recent report discussed the effects of India's improved ranking in the **Global Terrorism Index.**

Background:-

- India's Global Terrorism Index (GTI) score of 7.43 and crime index score of 44.7 indicated a decline in terror and crime incidents since 2016 which can be attributed to strengthened security measures.
- The report by Ficci Cascade highlighted the **need to curb illicit trade**, which threatens national security and has negative impacts on manufacturing, government revenue, public health, and consumer trust.

About Global Terrorism Index:-

- **Published by: Institute for Economics and Peace (IEP).**
- **Publication timing: annually.**
- The Institute for Economics and Peace (IEP), a **global think tank.**
- **HQ: Sydney, Australia.**
- The index is based primarily on the **Global Terrorism Database (GTD)** collated by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland, besides other sources.
- The index **provides a comprehensive summary of the key global trends** and patterns in terrorism since 2000.
- [GTI](#) scores are directly **used in the Global Peace Index, the Global Slavery Report.**
- It is also **indirectly used** in reports of the World Economic Forum's Travel and Tourism Competitiveness and Global Competitiveness Indices and compilation of the Safe Cities Index by the Economist Intelligence Unit.

Key Highlights of the report:-

- Attacks have become more deadly with the **lethality rising by 26%**.
- **Islamic State (IS) and its affiliates remained the world's deadliest terrorist group** in 2022 for the eighth consecutive year, with attacks in 21 countries.
- **Ideological terrorism continues** to be the most prominent and deadliest form of terrorism in the West.
- The **Sahel is the most impacted region**, representing 43% of global terrorism deaths.
- **Pakistan recorded the second-largest surge** in terror-related deaths worldwide in 2022, with the toll increasing significantly to 643.
- **South Asia** remains the region with the worst average GTI score.
- **India ranks 13th** on The Global Terrorism Index (GTI).

MUST READ: [Terrorism & and its financing](#)

SOURCE: [TIMES OF INDIA](#)

Unlawful Activities (Prevention) Act

Context: Recently, the Centre declared the National Liberation Front of Tripura, All Tripura Tiger Force, and their factions as unlawful associations under the **Unlawful Activities (Prevention) Act**.

Background:-

- The Home Ministry has banned these organizations for five years.
- The Ministry said, the government is of the opinion that the activities of NLFT and ATTF are detrimental to the sovereignty and integrity of India and that they are unlawful associations.

About the Unlawful Activities (Prevention) Act, 1967:-

- It is an anti-terror law aimed at the prevention of **unlawful activity and associations** in India.
- **Objective:** to make powers available for dealing with activities directed against the integrity and sovereignty of India.
- The Act assigns **absolute power to the Central Government**.
- It can **declare an activity as unlawful**, by way of an Official Gazette. ([Misuse of UAPA](#))
- **Applicability:** Under the act, **both Indian and foreign nationals** can be charged.
- **Punishment:** The act has the **death penalty and life imprisonment** as the highest punishments.
- **Duration of punishment:** Under section 43D, police are empowered to detain the accused in police custody for 30 days and in judicial custody for a period of 180 days without the charge sheet.
- This duration **can be extended further** after information to the court.
- The Act empowers the **Director General of the National Investigation Agency (NIA)** to grant approval for the **seizure or attachment of property** when the case is investigated by the said agency.
- The Act empowers the officers of the NIA, of the rank of Inspector or above, to investigate cases of terrorism in addition to those **conducted by the DSP or ACP or above rank officer** in the state.

Recent Amendment:-

- So far the Act has been amended six times and the **last one being 2019**.
- The **most recent amendment** of the law, the [Unlawful Activities \(Prevention\) Amendment Act, 2019 \(UAPA2019\)](#).
- It has made it possible for the **Union Government to designate individuals as terrorists without following any formal judicial process**.

MUST READ: [Terrorism & its financing](#)

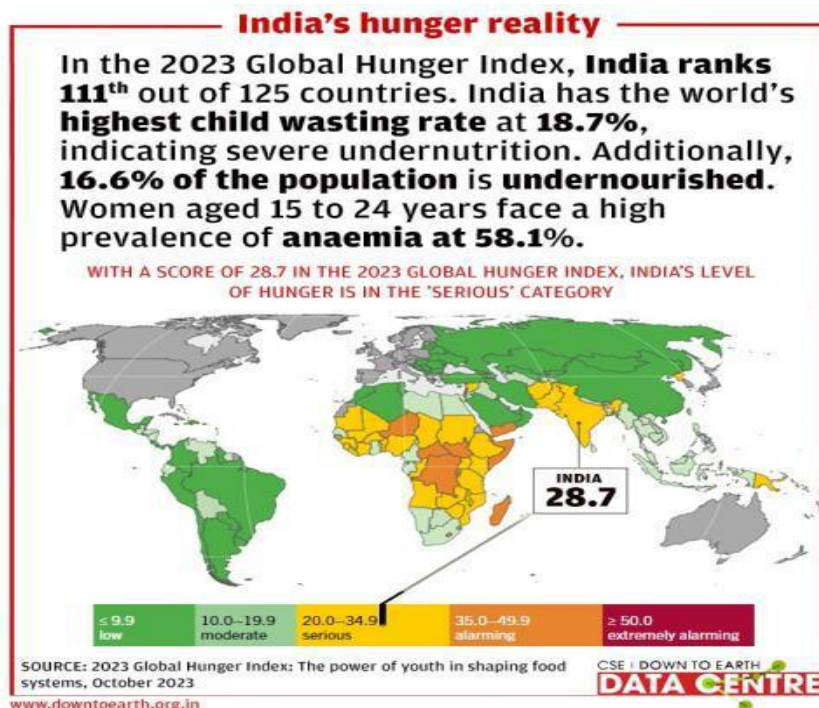
SOURCE: [AIR](#)

Global Hunger Index 2023

Context: Global Hunger Index 2023 was released recently.

Key Highlights:-

IMAGE SOURCE: [DOWN TO EARTH](#)



- The 2023 GHI shows that, after many years of advancement up to 2015, **progress against hunger worldwide remains largely at a standstill.**

- As the effects of crises multiply and intensify, **more and more people are experiencing severe hunger**, with the situation expected to worsen throughout the year.

- **South Asia and sub-Saharan Africa** are the global regions characterized by the most severe hunger levels, both holding a GHI score of 27, signifying a serious state of

hunger.

- India topped the list of countries with the **highest child-wasting rate in the world**, at 18.7 per cent, reflecting acute undernutrition.
- The country's child wasting rate is **higher than that of conflict-ridden Yemen (at 14.4 per cent) and Sudan at (13.7 per cent)**, which hold the second and third positions, respectively
- India has been ranked at the **111th position out of 124 countries**, with neighbouring Pakistan (102th), Bangladesh (81st), Nepal (69th) and Sri Lanka (60th) faring better than it in the index.
- The country slipped four notches **from its 107th position in 2022.**
- **Child wasting:** refers to the share of children under age five who have low weight for their height.
- **Indian government's stand:** The Indian government has questioned the **methodology of GHI.**

Initiatives taken by the government:-

- **National Food Security Act, 2013:** It legally entitled up to 75% of the rural population and 50% of the urban population to receive subsidized food grains under the Targeted Public Distribution System.
- **Integrated Child Development Services (ICDS) Scheme:** Launched on 2nd October 1975, the ICDS Scheme offers a package of six services (Supplementary Nutrition, preschool non-formal education, Nutrition & health education, Immunization, Health check-up and Referral services) to children in the age group of 0-6 years, pregnant women and lactating mothers.
- **Pradhan Mantri Matru Vandana Yojana:** A centrally sponsored scheme executed by the Ministry of Women and Child Development, is a maternity benefit programme being implemented in all districts of the country with effect from 1st January 2017.
- **POSHAN Abhiyan:** Launched in 2018, it aims to reduce stunting, undernutrition, and anaemia (among young children, women and adolescent girls).

- **Food Fortification:** Food Fortification or Food Enrichment is the addition of key vitamins and minerals such as iron, iodine, zinc, and Vitamin A & D to staple foods such as rice, milk and salt to improve their nutritional content.

About Global Hunger Index 2023:-

- **Time period: Annual.**
- **Published by: Concern Worldwide and Welthungerhilfe.**
- The [Global Hunger Index \(GHI\)](#) is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels. GHI scores are based on the values of four component indicators:
 - **Undernourishment:** the share of the population with insufficient caloric intake.
 - **Child stunting:** the share of children under age five who have low height for their age, reflecting chronic undernutrition.
 - **Child wasting:** the share of children under age five who have low weight for their height, reflecting acute undernutrition.
 - **Child mortality:** the share of children who die before their fifth birthday, partly reflecting the fatal mix of inadequate nutrition and unhealthy environments.
- Based on the values of the four indicators, a GHI score is calculated on a **100-point scale**.
- **The scale** reflects the **severity of hunger**, where **0 is the best possible score** (no hunger) and **100 is the worst**.
- Each country's GHI score is classified by **severity, from low to extremely alarming**.
[\(Understanding the Global Hunger Index\)](#)

MUST READ: [Food security](#)

SOURCE: [DOWN TO EARTH](#)

Same-sex marriage case

Context: Recently, the Constitution Bench of the Supreme Court delivered a judgment in the **same-sex marriage case**.

Background :-

- In a ruling Tuesday that disappointed LGBTQ+ rights campaigners, a Constitution Bench of the Supreme Court unanimously rejected their prayer to grant legal recognition to same-sex marriage and left it to Parliament to change the law for such a union.

About same-sex marriage case:-

- The SC took up the case as petitioners claimed that the **non-recognition of same-sex marriage amounted to discrimination** that strikes at the root of dignity and self-fulfilment of LGBTQIA+ couples.
- The petitioners cited the **Special Marriage Act, of 1954** and appealed to the Court to extend the right to the LGBTQIA+ community, by making the marriage between any two persons gender-neutral.

Arguments in Favour:-

- Considering Marriage as a Fundamental Right.
- Need to extend Special Marriage Act to Queer Indians.
- Assimilation of same-sex couples in society. [\(Same-Sex Marriage\)](#)
- Preserving Human Dignity. [\(LGBTIQ+\)](#)

- Ease in Surrogacy and adoption.

Arguments against:-

- Against traditional and religious definitions of Marriage.
- Preserving the Right to Privacy of same-sex couples which is not possible in marriage as it has a public element involved.
- Only Parliament has the authority to decide on same-sex marriage as it is a matter of democratic right and the court should not legislate on the issue.
- When queer couples adopt children, it can lead to societal stigma, discrimination, and negative impacts on the child's emotional and psychological well-being.
- The Special Marriage Act (SMA) cannot be interpreted to include same-sex marriage because the Act's entire architecture would need to be examined.

Judgement:-

- Citing “institutional limitations”, a five-judge bench, comprising Chief Justice of India D Y Chandrachud, Justices Sanjay Kishan Kaul, S Ravindra Bhat, Hima Kohli and P S Narasimha, in four separate judgments, **declined to strike down or tweak provisions of the Special Marriage Act, 1954 (SMA).**
- They said that there is “**no unqualified right**” to marriage, and a **same-sex couple cannot claim it as a fundamental right** under the Constitution.
- However, the bench **recognized equal rights for queer people** and their protection and called for sensitization of the public to ensure they are not discriminated against.

MUST READ: [Toward legalising same-sex marriage](#)

SOURCE: [THE INDIAN EXPRESS](#)



INTERNATIONAL RELATIONS



Seventh India-EU Cyber Dialogue

Context: The **Seventh India-EU Cyber Dialogue** was held recently.

About Seventh India-EU Cyber Dialogue:-

- **Date: 05 October 2023.**
- **Venue: Brussels, Belgium.**
- In the context of the vibrant Strategic Partnership between India and the EU, the two sides expressed appreciation for the Cyber Dialogue mechanism.
- **Objective:** to provide a platform to discuss a wide range of issues related to cyberspace.
- Both sides exchanged views on **cyber policies, strategies, and areas of mutual interest.**
- They discussed **cyber cooperation in multilateral fora**, including at the United Nations, and in regional settings, including at **OSCE, ARF, and G20.**
- They also discussed **cooperation in promoting capacity building in cyberspace** and combating the criminal use of ICTs.

About India-EU Relations:-

- The EU is a **political and economic union of 27 member states** that are located primarily in **Europe.**
- The union and EU citizenship were established when the **Maastricht Treaty** came into force in 1993.
- India was one of the first countries to establish relations with the **European Economic Community** in the 1960s.
- The retreat of the U.S. from global leadership has provided opportunities for **EU-India cooperation.**

Political Cooperation:-

- **2000:** The **first India-EU Summit was held in 2000** which marked a watershed in the development of the relationship.
- **2004:** The relationship was upgraded to a '**Strategic Partnership**' during the 5th India-EU Summit held in 2004.
- **2018:** the EU's strategy on India entitled "A Partnership for Sustainable Modernization and Rules-based Global Order" was issued by the European Commission and the EU High Representative for Foreign Affairs and Security Policy.

Trade:-

- India is an important trade and investment partner for the EU. ([India-EU: Trade talks](#))
- It is the **second-largest destination for Indian exports** after the United States.
- India's bilateral trade with the EU amounted to USD 116.36 billion in **2021-22.**
- Despite the global disruptions, bilateral trade achieved impressive **annual growth of 43.5%** in 2021-22.
- The trade agreement with the EU would help India further expand and **diversify its exports of goods and services, including securing the value chains.**

Defense & Security:-

- EU and India have instituted several mechanisms for greater cooperation on pressing security challenges like **counterterrorism, maritime security, and nuclear non-proliferation.**
- Information Fusion Centre – Indian Ocean Region in New Delhi (IFC-IOR) has recently been linked up with the Maritime Security Centre – Horn of Africa (MSC-HOA) established by the EU Naval Force (NAVFOR).

Climate Change:-

- EU and India also underline their highest political commitment to the effective implementation of the **Paris Agreement and the UNFCCC**. ([EU's Sustainability Push on India](#))
- The **India-EU Clean Energy and Climate Partnership** was agreed at the 2016 Summit.
- EU and India also cooperate closely on the **Clean Ganga initiative**.

Research and Development:-

- The India-EU Science & Technology Steering Committee meets annually to review scientific cooperation.
- Both have official mechanisms in fields such as **Digital Communications, 5G technology, Biotechnology, artificial intelligence, etc.**
- ISRO has had a long-standing cooperation with the European Union, since the 1970s.
- It has contributed to the EU's satellite navigation system **Galileo**.

Challenges:-

- **Deadlock over BTIA:** The negotiations for a Broad-based Bilateral Trade and Investment Agreement (BTIA) were held between 2007 to 2013 but have remained dormant/suspended since then.
- **EU primarily remains a trade bloc:** This has resulted in a lack of substantive agreements on matters such as regional security and connectivity.
- **China's influence:** The EU has a high dependence on the **Chinese market**.
 - It is a major partner in China's **Belt and Road Initiative (BRI)**.
- **Ukrainian war:** EU expects India to criticize Russia.

MUST READ: [India-EU ties](#)

SOURCE: [AIR](#)

International Criminal Court

Context: The Armenian parliament recently, voted to join the **International Criminal Court**.

Background:-

- The move is likely to further strain Armenia's deteriorating relation with its ally Russia, which last month called Armenia's push to join the ICC an "unfriendly step."

About Armenia:-

IMAGE SOURCE: [operationworld.org](https://www.operationworld.org)

- **Continent:** Asia.
- **Capital:** Yerevan.
- Armenia is a landlocked country.
- It is located toward the end of the southern **Caucasus Mountains**.
- **Bordering countries:** Azerbaijan, Nagorno-Karabakh Republic (a disputed territory), Turkey, Nakhchivan Autonomous Republic (an exclave of Azerbaijan), Georgia, and Iran.

About International Criminal Court:-

- **Establishment:** 2002.
- **HQ:** Hague, Netherlands.
- **Official languages:** English, French, Arabic, Chinese, Russian and Spanish.

- The International Criminal Court (ICC) is an **international organization and international tribunal**.



the international community.

- The Court's founding treaty, called the **Rome Statute**.

- **India is not a party** to the Rome Statute along with US and China.

- It is the **world's first permanent** international criminal court.

- The International Criminal Court (ICC) investigates and, where warranted, tries individuals charged with the gravest crimes of concern to

ICC's Jurisdiction:-

It grants the ICC jurisdiction over **four main crimes**.

- **First:** the crime of **genocide**.
- It is characterized by the specific intent to destroy in whole or in part a national, ethnic, racial, or religious group by killing its members or by other means: causing serious bodily or mental harm to members of the group.
- **Second:** the ICC can prosecute **crimes against humanity**. ([Rohingya & ICC](#))
- These are serious violations committed as part of a large-scale attack against any civilian population.
- **Third:** war crimes are grave breaches of the **Geneva conventions** in the context of armed conflict.
- **Fourth:** includes crime falling within the ICC's jurisdiction is the **crime of aggression**.
- It is the **use of armed force** by a State against the sovereignty, integrity, or independence of another State.
- The **definition of this crime** was adopted by amending the **Rome Statute** at the first Review Conference of the Statute in Kampala, Uganda, in 2010.

Limitations of ICC:-

- ICC does not have its own **police force or enforcement body**, it relies on cooperation with countries worldwide for support.
- There are **insufficient checks and balances** on the authority of the ICC **prosecutor and judges**.
- ICC has been accused of being a tool of Western imperialism and **biased in favour of powerful countries** against weak states.

MUST READ: [International Court of Justice](#)

SOURCE: [THE INDIAN EXPRESS](#)

Israel's Iron Dome

Context: Israel's Iron Dome anti-missile system intercepted rockets launched from the Gaza Strip in the recent attack.

Background:-

- The Hamas militant group launched its worst attack inside the Jewish state's territory since 1948 on Saturday (October 7), killing at least 250 Israelis and abducting several others.

About Israel's Iron Dome:-

IMAGE SOURCE: [WorldAtlas](#)

- Iron Dome is a **short-range, ground-to-air, air defense system**.



- It includes **radar and Tamir interceptor missiles** that **track and neutralize any rockets or missiles** aimed at Israeli targets. ([Ballistic missiles](#))

- It is **used for countering** rockets, artillery & mortars (C-RAM) as well as aircraft, helicopters, and unmanned aerial vehicles.

Historical Background:-

- The genesis of the Iron Dome goes back to the 2006 Israeli-Lebanon war when Hezbollah fired thousands of rockets into Israel.

- The following year, Israel announced that its state-run **Rafael Advance Systems** would come up with a new **air defense system**

to protect its cities and people.

- It was developed with **Israel Aerospace Industries**.
- The Iron Dome was **deployed in 2011**.

Salient Features:-

The Iron Dome has **three main systems**.

- **Radar:** It has a detection and tracking radar to spot any incoming threats.
- **Weapon Control:** It has a battle management and weapon control system (BMC).
 - The BMC basically liaises between the radar and the interceptor missile.
 - The BMC basically liaises between the radar and the interceptor missile.
- **Missile Fire:** It also has a missile firing unit.
- All these three units work together to provide a **shield over the area where** it is deployed.

Advantages of Iron Dome:-

- It has a **detection and tracking radar** to spot any incoming threats.
- It can handle **multiple threats**.
- It is capable of being used in **all weather conditions**, including during the **day and night**.

MUST READ: [India and Israel](#)

SOURCE: [HINDUSTAN TIMES](#)

Asia-Pacific Institute for Broadcasting Development (AIBD)

Context: India re-elected the **Asia-Pacific Institute for Broadcasting Development (AIBD)** General Conference (GC) president for the third successive term recently.

Background:-

- The Information & Broadcasting Ministry Secretary, Apurva Chandra, said this was a first in the history of AIBD.
- The move showed the confidence broadcasting organizations across the Asia Pacific and the world reposed in India.

About Asia-Pacific Institute for Broadcasting Development (AIBD):-

- **Established:1977**
- **Host: Government of Malaysia**
- **Secretariat: Kuala Lumpur.**

- **Objective:** to achieve a vibrant and cohesive electronic media environment in the Asia Pacific region through policy and resource development.
- **Membership:** It has **92 member organizations** from across 44 countries, including 26 government members (countries) represented by 48 broadcasting authorities and broadcasters.
- It also has 44 affiliates (organizations) represented by 28 countries and regions in Asia, the Pacific, Europe, Africa, Arab States, and North America.
- **India** is one of the founding members of this organization.
- **Representative body:** The **Prasar Bharati** is the representative body of the Ministry of Information & Broadcasting, Government of India, at AIBD.
- It was established under the auspices of the **United Nations Educational, Scientific and Cultural Organization (UNESCO)**.
- It is a **unique regional inter-governmental organization** servicing countries of the **United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)** in the field of electronic media development.
- The Institute seeks to fulfill this mandate by **mobilizing the intellectual and technological** resources available within the national broadcasting organizations of its member countries as well as regional and international bodies.
- It does it through a well-established **infrastructure and networking mechanism** which includes government agencies, non-governmental organizations, institutions of higher learning, the private sector, and individual professionals.

MUST READ: [Broadcasting Infrastructure and Network Development \(BIND\) scheme](#)

SOURCE: [THE HINDU](#)

ISRAEL-PALESTINE CONFLICT

Context: Recently, Palestine-based Hamas militants launched a barrage of rockets on Israel on Saturday infiltrating the towns near the Gaza Strip through land, air, and sea.

- **Hamas or the Islamic Resistance Movement:** is a militant group that governs the Gaza Strip.
 - It emerged in 1987 as an offshoot of the Muslim Brotherhood during the first Palestinian intifada, or uprising, against the Israeli occupation of Gaza and the West Bank.
 - It was founded by **Sheikh Ahmed Yassin**, a Palestinian cleric.
 - Its military wing, **the Izzedine al-Qassam Brigades**, was established around 1991.

About ISRAEL-PALESTINE CONFLICT:-

Background of the war:-

IMAGE SOURCE: [express.co.uk](https://www.express.co.uk)

- Both Israelis and Palestinians have been in a struggle for **self-determination and sovereignty over the territory**, developing respective movements for their causes.
- Both Palestinians and Israelis see the territory between the Jordan River and the Mediterranean Sea as their own, and Christians, Jews, and Muslims all hold parts of the land as sacred.
- The past seven decades have brought war and uprisings. [\(15th India-Israel Joint Working Group\)](#)

Historic Timeline:-

- **Ottoman Empire:** The **Ottoman Empire** had controlled that part of the Middle East from the early 16th century until control of most of the region was granted to the British after World War I.
- **In 1916:** the **Sykes-Picot Agreement** secretly negotiated between Britain and France planned to carve up the Middle East into spheres of influence, and determined that the land in **question was to be internationalized**.

- In **1917**: Britain's foreign secretary, Lord Arthur Balfour, expressed his government's support for "the establishment in Palestine of a national home for the Jewish people."

1947: UN resolution

- **1947**: After World War II, nearing the end of the British Mandate for Palestine, the **United Nations General Assembly in 1947 passed Resolution 181**, urging the partition of the land into two independent states — one Arab and one Jewish.
- Religiously significant **Jerusalem** is to be **under special international administration**.
- The plan is not implemented after the **Arab side rejects** it, arguing that it is unfavorable to their majority population.



- Violence in the regional conflict grows. **1948: Israel declares independence.**
- Israel declared independence in May 1948.
- The next day, a coalition of Arab states, allied with Palestinian factions, attacked Israeli forces in what became the first of several Arab-Israeli wars.
- In the end, **Israel gains control of an even larger portion** of territory — not including the areas of the West Bank and Gaza Strip.

1967: the Six-Day War

- In June of 1967, a war known as the "**Six-Day War**" or the 1967 Arab-Israeli War broke out amid lingering conflicts, including **Egypt's continued blockade of shipping into the Gulf of Aqaba**.
- Israel ultimately took control of the **Gaza Strip, Sinai, the West Bank, the Golan Heights**, and predominantly **Palestinian East Jerusalem**.
- The Arab armies suffered massive losses.

1987: First intifada

- A Palestinian uprising, or intifada, brings largely spontaneous clashes, protests, and civil disobedience against Israeli occupation in the **West Bank, Gaza, and Israel**, leading to harsh Israeli military crackdowns.
- Unrest continues for years, with many killed or injured on both sides.

1993: Oslo Accords

- The first of two pacts, known as the Oslo Accords, was signed between Israel and the Palestine Liberation Organization (PLO).
- It set out a **peace process based on previous U.N. resolutions**.
- It charted out the **expansion of a limited Palestinian self-rule** in the West Bank and Gaza Strip.
- A follow-up accord was signed in **1995**.
- However, **key issues** such as **Israeli settlements in the West Bank and the status of Jerusalem**, were left unresolved.

2006: Hamas elected in Gaza

- Israel withdrew its troops from Gaza in 2005.
- The Palestinian militant group Hamas wins legislative elections the next year, leading to political strains with the more moderate Fatah party controlling the West Bank.

2017: U.S. recognizes Jerusalem as capital

- The **Donald Trump administration recognizes Jerusalem as the capital of Israel** and announces that it plans to shift the U.S. Embassy from Tel Aviv, stirring outrage from Palestinians.

2023: Recent events:-

- **January 2023:** Israeli forces raid the Palestinian city of Jenin, killing nine people in a shootout.
- **Summer 2023:** Retaliatory attacks flare
- Israel launches surprise airstrikes across the Gaza Strip in May.
- **October 2023:** Israel is attacked by Hamas.
- Prime Minister of Israel, Netanyahu formally declared war on Hamas on Oct. 8 following a surprise assault by Hamas militants that came a day after the 50th anniversary of the start of the 1973 Yom Kippur War.

MUST READ: [India-Israel Industrial R&D & Technological Innovation Fund \(I4F\)](#)

SOURCE: [HINDUSTAN TIMES](#)

Parliamentary Speakers' Summit (P20 Summit)

Context: Presiding Officers of G20 Nations began arriving in India for the 9th **Parliamentary Speakers' Summit (P20 Summit)** recently.

Background:-

- Prime Minister Narendra Modi will inaugurate the Summit.

About Parliamentary Speakers' Summit (P20 Summit):-

- **Year: 2023.**
- **Host Country: India**
- **Inauguration: 13th October 2023.**
- **Venue: New Delhi.**
- **Frequency: Annual**
- **Theme: Multilateralism for Inclusive Development.**
- **Objective:** To bring together Speakers of Parliament from G20 countries for discussions on global issues.
- Under the banner of "Multilateralism for Inclusive Development," the P20 Summit 2023 underscores the **imperative role of international cooperation** in addressing pressing global concerns, including climate change, poverty alleviation, and inequality.
- During the global event, **four high-level sessions** will be organized on the topics namely:
 - Accelerating Sustainable Development Goals
 - Sustainable Energy Transition
 - Women-led development
 - Transformation in People's lives through Public Digital Platforms.
- India aims to provide **consensus-based solutions** to complex global issues towards a **more inclusive, peaceful, and equitable world** during the P20 Summit with the spirit of **Vasudhaiva Kutumbakam - One Earth, One Family, One Future.**
- The Parliament20 Summit, stands as a pivotal **global gathering of political leaders, scholars, activists, and stakeholders.**
- They come together to address some of the **most pressing issues facing our world today.**
- It is an **extension of the G20 Summit.** ([G20 logo](#))
- It focuses exclusively on **parliamentary diplomacy, governance, and international cooperation.**
- It provides a **platform for legislators worldwide** to exchange ideas, collaborate on policy solutions, and foster meaningful dialogue on **global challenges such as climate change, economic stability, and social justice.**

MUST READ: [G20 Presidency](#)

SOURCE: [AIR](#)

8th BRICS International Competition Conference

Context: The 8th BRICS International Competition Conference to be held in Delhi recently.

About the 8th BRICS International Competition Conference Venue: New Delhi.

- **Year: 2023.**
- **Host: India.**
- **Venue: New Delhi.**
- **Date: 12-13 October 2023.**
- **Theme: New issues in competition law and policy, dimensions, perspectives, and challenges.**
- The **Competition Commission of India (CCI)** will be hosting the 8th BRICS ICC.
- This **two-day international conference** will commence with registration and a reception dinner on the evening of **October 11, 2023.**
- Around 350 delegates from competition authorities in **BRICS and non - BRICS Nations**, including globally eminent competition experts and Indian delegates, are expected to attend and participate in this conference.
- The **heads of BRICS competition** authorities will address the closing ceremony and will sign a Joint Statement. ([BRICS Summit 2021](#))

About BRICS International Competition Conference:-

- **First conference: Russia, September 2009.**
- The BRICS International Competition Conference (BRICS ICC) is an important event under the framework of the BRICS Leaders' Meeting.
- It is held **biennially** by the BRICS competition authorities on a **rotation basis.**
- It was established at the meeting of the Heads of State of BRICS (then BRIC) countries in Yekaterinburg, Russia, on **16 June 2009.**
- After 2013, it is after **10 years since** the hosting rights of the BRICS ICC have been handed over to **India.**

MUST READ: [BRICS – 14th Summit](#)

SOURCE: [AIR](#)

Indian Ocean Rim Association (IORA)

Context: The 23rd Council of Ministers of the **Indian Ocean Rim Association (IORA)** met recently.

About the 23rd Council of Ministers of IORA:-

- **Date: 11 October 2023.**
- **Host: Sri Lanka.**
- **Venue: Colombo, Sri Lanka.**
- **Theme: "Strengthening Regional Architecture: Reinforcing Indian Ocean Identity.**
- Sri Lanka assumed the chairmanship from **Bangladesh.**
- Sri Lanka will serve as chair for the **next two years.**
- **India** has assumed the Vice Chair in the Indian Ocean Rim Association (IORA) for the next two years.

About Indian Ocean Rim Association (IORA):-

- **Establishment: 1997.**
- **Secretariat: Cyber City, Ebène, Mauritius.**
- **Objective:** to ensure the sustainable development of the Indian Ocean region.
- The IORA is an **intergovernmental organization.**
- It was formerly known as the Indian Ocean Rim Initiative and the Indian Ocean Rim Association for Regional Cooperation (**IOR-ARC**).

- **Membership:** It comprises **23 member states** and 11 dialogue partners hailing from regions surrounding the Indian Ocean.
- **Members:** Australia, Bangladesh, Comoros, French Republic, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, the United Arab Emirates, the Maldives, and Yemen.
- In 2014, **India** hosted the first Indian Ocean Dialogue in **Kochi, Kerala**.

Structure:-

- IORA's apex body is the **Council of Foreign Ministers (COM)** which meets annually.
- It is the **highest decision-making body of IORA**.
- The **United Arab Emirates (UAE)** assumed the role of Chair from **November 2019 - November 2021**, followed by the **People's Republic of Bangladesh from November 2021 - November 2023**.
- A **committee of Senior Officials (CSO)** meets twice a year to progress IORA's agenda and consider recommendations by Working Groups and forums of officials, business and academics.

Functions:-

- It manages, coordinates, services and monitors the implementation of policy decisions, work programmes and projects adopted by the member states.
- Strengthen regional cooperation and promote sustainable development within the Indian Ocean region.
- Development through economic cooperation.

Focus Areas:-

- Maritime Security ([GREEN MARITIME SECTOR](#))
- Trade and Investment Facilitation
- Fisheries Management
- Disaster Risk Reduction
- Academic and Scientific Cooperation ([Indian Ocean Naval Symposium](#))
- Tourism Promotion and Cultural Exchanges
- Blue Economy

Significance:-

- The association gains importance by the fact that the **Indian Ocean carries half of the world's container ships**, one-third of the world's bulk cargo traffic and two-thirds of the world's oil shipments.
- It is a **lifeline of international trade and transport** and the Indian Ocean region is woven together by trade routes and commands control of major sea lanes.

MUST READ: [International Maritime Exercise](#)

SOURCE: [AIR](#)

India and Oman

Context: Recently, External Affairs Minister Dr.S.Jaishanka held a conversation with **Omani** Foreign Minister Badr Albusaidi.

About India and Oman:-

IMAGE SOURCE: [WORLD ATLAS](#)

- India and Oman are linked by **geography, history and culture**.
- They enjoy warm and cordial relations, which are attributed to **historical maritime trade linkages**.
- People-to-people contact between India and Oman **can be traced back 5,000 years**.

- The diplomatic relations were **established in 1955**.



- **Gandhi Peace Prize 2019** was conferred on **Late HM Sultan Qaboos** in recognition of his leadership in strengthening the ties between India & Oman and his efforts to promote peace in the Gulf region.

Political Relations:-

- The historical India-Oman bilateral ties were transformed into a **strategic partnership in November 2008**.
- **Visits at the highest level** have been exchanged frequently between India and Oman.
- **Ministerial-level visits** have

taken place regularly.

- The Sultanate of Oman is a strategic partner of India in the Gulf and an **important interlocutor at the Gulf Cooperation Council (GCC), Arab League and Indian Ocean Rim Association (IORA) fora**.
- Nine areas of cooperation were listed between the two countries, i.e. **agriculture, healthcare, infrastructure, tourism, chemicals & fertilizers, education, oil & gas, power and mining**.

Defence Cooperation:-

- Oman is the **first nation in the Persian Gulf to have formal defence relations** with India.
- Both countries conducted **joint military exercises in 2006** and later signed a defence agreement.
- The Ministries of Defence of both countries **review their relations annually** under the aegis of a Joint Military Cooperation Committee meeting.
- India and Oman conduct **regular biennial bilateral exercises** between all three services.
 - **Army exercise: Al Najah**
 - **Air Force exercise: Eastern Bridge**
 - **Naval Exercise: Naseem Al Bahr**
- Since 2008, Oman has been extending its support to the **Indian Navy's anti-piracy missions** and Indian Naval Ships are regularly welcomed by Oman for Overseas Deployments.

Economic & Commercial Relations:-

- For Oman, **India was the 3rd largest** (after UAE and China) source for its imports and **3rd largest market** (after UAE and Saudi Arabia) for its non-oil exports in 2019.
- **Major Indian financial institutions** have a presence in Oman.
- Indian companies have invested in Oman in sectors like **iron and steel, cement, fertilisers, textiles etc.**
- **India-Oman Joint Investment Fund (OIJIF)**, a JV between the State Bank of India and the State General Reserve Fund (SGRF) of Oman, a special purpose vehicle to invest in India, has been operational.

MUST READ: [Prioritise trade pact with GCC](#)

SOURCE: [AIR](#)



Economy



TIR Executive Board (TIRExB)

Context: The Central Board of Indirect Taxes and Customs, Ministry of Finance (CBIC) recently requested support for India's candidature for the **TIR Executive Board (TIRExB)**.

Background:-

- The Central Board of Indirect Taxes and Customs, Ministry of Finance, in association with the Ministry of External Affairs organized an event in New Delhi yesterday for ambassadors and delegates from Contracting Parties to the Convention on International Transport of Goods Under Cover of TIR Carnets (TIR Convention, 1975).

About TIR Executive Board (TIRExB):-

- The TIR Executive Board (TIRExB) is a **subsidiary body of the TIR Administrative Committee**.
- **Composition:** it is composed of **9 members**, each from different Contracting Parties to the TIR Convention.
- The TIRExB **supervises and provides support** in the application of the TIR procedure at the national and international levels.

About TIR Convention:-

- **Establishment: 1975.**
- The TIR Convention stands for the **“Convention on International Transport of Goods Under Cover of TIR Carnets.”**
- The Customs Convention on the International Transport of Goods under Cover of TIR Carnets (**TIR Convention, 1975**).
- It is one of the **most successful international transport conventions**.
- It is so far the **only universal Customs transit system** in existence. ([International Customs Day, 2023](#))
- To date, it has **78 Contracting Parties**, including the European Union.
- It covers the **whole of Europe** and reaches out to **North Africa and the Near and Middle East**.
- More than 33,000 operators are authorized to use the TIR system and around 1.5 million TIR transports are carried out per year.
- It is an international harmonized system of Customs control, which enables seamless transport of goods crossing multiple international borders using a single customs document (TIR Carnet) and a unified system of guarantee.

India and TIR:-

- India became a **party to the TIR Convention in 2017**.
- India is a significant **trading nation in the Asia Pacific region**.
- It has been a **key participant** in the [International North-South Transport Corridor \(INSTC\)](#).
- Since its accession to the Convention, India has taken several measures to **promote the use of TIR**.
- A **National Guaranteeing Association** has been appointed and a Circular 48/2018-Cus has been issued detailing the procedure and authorizing ports and other customs stations of the country.
- India has also conducted **pilot runs, including one using digital TIR**. (Free Trade Agreements regime)
- Measures have been initiated to ensure effective usage of TIR through **stakeholder consultations**.

MUST READ: [Need for Reforms in UN](#)

SOURCE: [PIB](#)

National Investment and Infrastructure Fund

Context: Recently, the **National Investment and Infrastructure Fund** has unveiled a \$600 m India-Japan Fund.

Background:-

- The National Investment and Infrastructure Fund has entered into a collaboration with the Japan Bank for International Cooperation (JBIC) to unveil a \$600 million India-Japan Fund.

About National Investment and Infrastructure Fund:-

- **Establishment: 2015.**
- **Objective:** to maximize economic impact, especially by infrastructure investment in commercially viable projects.
- NIIF is **India's first sovereign wealth** fund set up by the government of India.
- It is a **fund manager** that invests in **infrastructure and related sectors** in India.
- The **Indian government has a 49% stake** in NIIF with the rest held by foreign and domestic investors.
- NIIF currently **manages three funds** each with its distinctive investment mandate.
- The funds are registered as [Alternative Investment Funds \(AIF\)](#) with the [Securities and Exchange Board of India \(SEBI\)](#).
- It has been incorporated as a company under the **Companies Act, 2013**, duly authorized to act as investment manager of the National Investment and Infrastructure Fund.

Governance:-

- NIIF has a Governing Council, which is **chaired by the Hon'ble Finance Minister of India**.
- It comprises of eminent members from **corporates, investments, and policy sectors**.
- The Governing Council meets annually and **provides guidance on the overall strategy of NIIF**.

Functions:-

- **Fund raising** through suitable instruments including off-shore credit enhanced bonds, and attracting anchor investors to participate as partners in NIIF.
- **Servicing of the investors** of NIIF.
- **Considering and approving candidate** companies/institutions/ projects (including state entities) for investments and periodic monitoring of investments.
- **Investing** in the corpus created by Asset Management Companies (AMCs) for investing in private equity.
- Preparing a shelf of infrastructure projects and **providing advisory services**.

MUST READ: [Approved](#)

SOURCE: [THE HINDU](#)

Card-on-file tokenization facility

Context: The RBI recently, announced the introduction of a **card-on-file tokenization facility** at the issuer bank level.

Background:-

- Currently, Card-on-File (CoF) tokens can **only be created through merchant applications or on the webpage of the e-commerce** website.
- Given the growing acceptance and benefits of tokenization of card data, it is now proposed to introduce Card-on-File Tokenisation (CoFT) creation facilities directly at the issuer bank level.

About card-on-file tokenization facility:-

- The central bank introduced [Card-on-File Tokenization \(CoFT\)](#) in **September 2021** and began implementation on October 1, 2022.

- **Objective:** to enhance convenience for cardholders in getting tokens created and linking them to their existing accounts with e-commerce applications.
- Tokenization is the **replacement of actual credit and debit card details** with an alternate code called the “token”, which will be unique for a combination of card, token requestor, and device.
- A CoF transaction occurs **when a cardholder authorizes a retailer to store the cardholder's Mastercard or Visa payment information.**
- The cardholder then authorizes the **business to charge the stored Mastercard or Visa account.**
- Card information is typically stored in the systems of **e-commerce companies, airlines, and supermarket chains.**
- **Significance:** The move will facilitate the creation and linking of tokens to cardholders’ existing accounts with e-commerce applications.

Benefits of tokenization:-

- **Enhanced safety and security:** It eliminates the risk of storing card details online and ensures the uncompromised convenience of storing customer’s token details on the merchant site.
- **Quicker checkouts:** Tokenized Mastercard will allow the convenience of quick checkouts as one doesn’t need to punch in the card number for each purchase.
- **No more ‘False Declines’:** Many times, legitimate online payments using valid cards are declined on the grounds of the transaction looking like a fraud. With tokenization, this becomes a thing of the past as the usage of tokens for payments confirms the security of the highest order.
- **Easy card management:** With tokenization, one can also keep track of all their cards and the merchants they have been tokenized with.
- **No need for a physical card**
- **Added benefits:** Tokenization also comes with **cashback benefits** when secured with platforms like Amazon, Paytm, Swiggy, etc.

MUST READ: [Open Network for Digital Commerce \(ONDC\)](#)

SOURCE: [BUSINESS LINE](#)

Rural Infrastructure Development Fund (RIDF)

Context: The Secretary of, the Department of Finance Services (DFS) chaired the stakeholder's meeting on the **Rural Infrastructure Development Fund (RIDF)** recently.

Background:-

- Dr Vivek Joshi, Secretary, Department of Financial Services, Ministry of Finance, Government of India, chaired a Stakeholders meeting on the Rural Infrastructure Development Fund (RIDF) in the presence of Dr M. P. Tangirala, Addl. Secretary, DFS, Chairman, NABARD; Managing Director, National Housing Board (NHB); Finance Secretaries and other senior officers from State and UT Governments.

About Rural Infrastructure Development Fund (RIDF):-

- **Establishment: 1995-96.**
- **Implementing Agency: National Bank for Agriculture and Rural Development(NABARD).**
- Rural Infrastructure Development Fund (RIDF) was **instituted in NABARD** with an announcement in the Union Budget 1995-96.
- **Objective:** giving low-cost fund support to State Govts. and State Owned Corporations for quick completion of ongoing projects relating to medium and minor irrigation, soil conservation, watershed management and other forms of rural infrastructure.
- **Funding:** The Fund is maintained by the **National Bank for Agriculture and Rural Development(NABARD).**
- **NABARD:-**

- **Establishment: 1982.**
- **Ministry: Ministry of Finance, Government of India.**
- It was created by transferring the agricultural credit functions of RBI and refinance functions of the then Agricultural Refinance and Development Corporation (ARDC).
- Consequent to the revision in the composition of share capital between the **Government of India and RBI.**
- NABARD today is **fully owned by the Government of India.**
- It is an **apex regulatory body** for the overall regulation of **regional rural banks and apex cooperative banks in India.**
- It is active in developing and implementing **financial inclusion.**

Financed Activities:-

- The activities to be financed under RIDF as classified under **three** broad categories namely:-
 - Agriculture and related sectors ([Agriculture Infrastructure Fund \(AIF\)](#))
 - Social sector ([Rural Healthcare system](#))
 - Rural connectivity.

Eligible Institutions:-

- State Governments / Union Territories
- State Owned Corporations / State Govt. Undertakings
- State Govt. Sponsored / Supported Organisations
- Panchayat Raj Institutions/Self Help Groups (SHGs)/ NGOs

Mode of Finance:-

- NABARD releases the sanctioned amount on a reimbursement basis except for the initial mobilization advance @30% to North Eastern & Hilly States and 20% for other States.

Quantum of Loan and Margin/Borrower Contribution:-

- The project for **rural connectivity, social and agri-related sectors**, is eligible for **loans from 80 to 95%** of the project cost.
- Cost escalation proposals for certain genuine reasons are considered within two years of sanction.

Rate of interest:-

- With effect from 01 April 2012, the interest rates payable to banks on deposits placed with NABARD and loans disbursed by NABARD from RIDF have been linked to the Bank Rate prevailing at that point in time.

Repayment period:-

- Loan to be repaid in **equal annual instalments within seven years** from the date of withdrawal, including a grace period of two years.
- The interest shall be paid at the end of each quarter i.e. 31 March, 30 June, 30 September and 31 December every year, including a grace period.

Penal Interest:-

- Interest on the overdue interest amount is to be paid at the **same rate as applicable to the principal amount.**

Security for Loan:-

- Loans sanctioned would be secured by the irrevocable letter of authority/mandate registered with Reserve Bank of India/any other Scheduled Commercial Bank, Time
- promissory Note (TPN), Execution of unconditional Guarantee from State Governments (Additionally required for support to State Government sponsored organisations, etc.) and acceptance of terms and conditions of sanction in the duplicate copy of the sanction letter.

Phasing of RIDF projects:-

- The implementation phase for projects sanctioned is spread over **2-5 years**, varying with the type of the project and also the location of the State.

MUST READ: [Cooperative Sector Reforms](#)

SOURCE: [PIB](#)



GEOGRAPHY



Hirakud reservoir

Context: High levels of cancer-causing heavy metals such as lead and chromium have been found in eight wetlands in Odisha, including the **Hirakud reservoir** recently.

Background:-

- The findings were recorded in a new study published in the journal Scientific Reports on September 28, 2023.
- The selected eight wetlands were: Natural ones such as Chandaneswar, Chilika, Daringbadi, and Koraput as well as constructed ones like Bhadrak, Hirakud, Talcher, and Titlagarh.
- The highest concentrations of heavy metal pollutants, lead (51.25 micrograms per gram) and chromium (266 micrograms per gram) were recorded in Hirakud.
- Heavy metal pollutants that commonly accumulate in wetlands as a result of human activity include lead, chromium, cadmium, copper, mercury, nickel, zinc, manganese, and arsenic. These metals can enter crops through the soil, which are then consumed by humans.

About Hirakud reservoir:-

IMAGE SOURCE: [Mapsofindia](https://www.mapsofindia.com)



- **Location:** Odisha.
- **Area:** 65,400 ha
- **River:** Mahanadi. ([Mahanadi Coalfields Ltd \(MCL\)](https://www.mcl.co.in))
- The Hirakud reservoir is one of the **largest human-made reservoirs** in India
- It is built across the Mahanadi River by a **combination of earth and modern dams** with a total length of almost 26 kilometers.
- The reservoir **helps regulate the water level of the river.**
- It thereby **moderates the impact of floods** in the Mahanadi Delta.
- It was designated a **Ramsar site in 2021** ([COP14 of Ramsar Convention on Wetlands](https://www.cop14.org/))
- **Biodiversity:** It provides habitat for over 130 bird species and about 54 fish, with one classified as endangered and six others as near-threatened.

- **Economic significance:** 21 fish species are economically important to the region as they provide a total yield of 480 tonnes per year, supporting the livelihoods of over 7,000 fishermen.
- The reservoir also produces around **350 megawatts of hydropower.**
- It also **irrigates 436,000 hectares of land.**
- **Tourism:** The rich biodiversity and other recreational activities in and around the reservoir make it a popular tourist destination, with over 30,000 tourists visiting annually.

MUST READ: [National Dam Safety Authority](https://www.ndsa.gov.in/)

SOURCE: [DOWN TO EARTH](https://www.downtoearth.org.in/)

South Lhonak lake

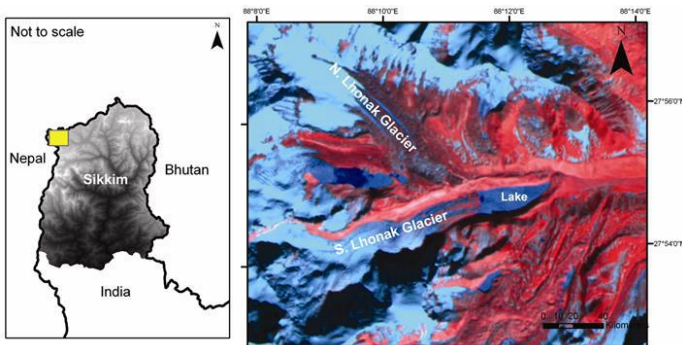
Context: Bursting of South Lhonak Lake which took place recently was forewarned by researchers two years ago.

Background:-

- Scientists had warned in 2021 that the South Lhonak lake in Sikkim would burst.
- The disaster finally took place on the intervening night of October 3-4, 2023.

About South Lhonak Lake:-

IMAGE SOURCE: [ResearchGate](#)



- **Location:** North Sikkim.
- **Altitude:** approximately 17,000 feet above sea level.
- **Formation:** Its formation is attributed to the melting glaciers of the region, a process accelerated by rising global temperatures.
- It plays a role in the **hydrological cycle**, releasing water downstream, ultimately **benefiting the Teesta River basin**.

- It is one of the **fastest expanding lakes** in the Sikkim Himalaya region.
- **South Lhonak Lake is a Glacial lake.**
- It is also one of the 14 potentially dangerous lakes susceptible to **Glacial lake outburst floods (GLOFs)**.
- **Glacial lakes** are large bodies of water that sit in front of, on top of, or beneath a melting glacier.
- **As they grow larger, they become more dangerous** because glacial lakes are mostly dammed by unstable ice or sediment composed of loose rock and debris.
- **In case the boundary around them breaks**, huge amounts of water rush down the side of the mountains, which could cause flooding in the downstream areas.
- This is called glacial lake **outburst floods or GLOF.** ()

MUST READ: [Lake](#)

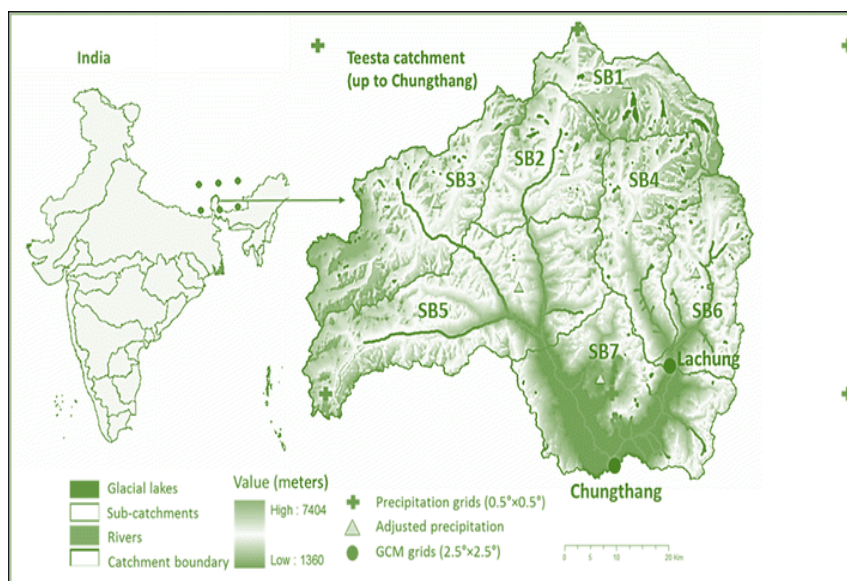
SOURCE: [DOWN TO EARTH](#)

Chungthang dam

Context: The recent breach in the **Chungthang dam** breach hit the milk supply in Sikkim.

Background:-

- Neighbouring Bihar stopped milk supply to Sikkim as the climate-change-induced **flood-damaged roads** in the state, causing supply chain disruptions. ([National Disaster Management Authority \(NDMA\)](#)).
- Flash floods occurred in north Sikkim after the South Lhonak Lake burst due to incessant rains.
- **Glacial lake outburst floods (GLOF):** A [glacial lake outburst flood \(GLOF\)](#) is a type of catastrophic flood that occurs when the dam containing a glacial lake fails, releasing a large volume of water.
- This type of flood is typically caused by the **rapid melting of glaciers** or the buildup of water in the lake due to heavy precipitation or the inflow of meltwater. ([Reimagining Disaster Management](#))

About Chungthang Dam:-IMAGE SOURCE: [researchgate.net](https://www.researchgate.net)

- **Location:** Chungthang, Sikkim.
- **Height:** 817 meters.
- **River:** Teesta.
- The dam serves as a **hydroelectric power generation facility**, contributing to Sikkim's renewable energy portfolio.
- It is an integral part of the **1200 MW mega Teesta Stage III Hydro Electric Project** which is a major source of electricity for Sikkim and West Bengal.

Teesta Stage III Hydro Electric Project:-

- **River:** Teesta.

- **Power:** 1,200 MW hydropower project.
- **Construction began:** in 2008.
- **Commissioned:** 2017.
- **Type:** It is a **run-of-the-river hydroelectric project**.
- The project is run by **Sikkim Urja (formerly Teesta Urja)**.

Significance:-

- By regulating the flow of the **Teesta River**, the Chungthang Dam plays a **crucial role in irrigation, drinking water supply, and flood control**.
- **Environmental Impact:** While the dam offers valuable benefits, its construction and operation also raise environmental concerns, including alterations in river ecosystems.

MUST READ: [Uttarakhand Glacier Disaster](#)SOURCE: [DOWN TO EARTH](#)**Asteroid Benu**

Context: Recent reports show that the samples collected from the 4.5-billion-year-old **asteroid Benu** could indicate the building blocks of life on Earth.

Background:-

- The sample return capsule from NASA's OSIRIS-REx mission is seen shortly after touching down in Utah, on September 24, 2023.
- The sample was collected from the asteroid Benu in October 2020. ([NASA's OSIRIS-REx](#))

About Asteroid Benu:-

- **Discovered:** 1999.
- **Discovered by:** NASA.
- The asteroid was discovered by a team from the **NASA-funded Lincoln Near-Earth Asteroid Research team** in 1999.
- It was originally named as **1999 RQ36**.
- The name Benu comes from an **Egyptian deity related to the Sun**, often depicted as a grey heron.
- It is a **500-meter-wide asteroid** in an elliptical orbit around the sun.
- It is currently more than **200 million miles from Earth**.

- Benu's orbit is **close in proximity to Earth's**, even crossing it.
- The asteroid makes its closest approach to Earth **every 6 years**.
- It is one of the most potentially **hazardous asteroids** currently known to Earth.
- It has a 1-in-2,700 chance of impacting Earth during one of its close approaches to Earth in the **late 22nd century**.
- OSIRIS-REx – short for Origins-Spectral Interpretation-Resource Identification-Security-Regolith Explorer was the first U.S. mission to collect a sample from an asteroid.

About OSIRIS-Rex:-

- **Launched on: Sept. 8, 2016.**
- **Launched by: NASA.**
- OSIRIS-REx – short for Origins-Spectral Interpretation-Resource Identification-Security-Regolith Explorer.
- It was the **first U.S. mission** to collect a sample from an asteroid.
- The OSIRIS-REx mission is essentially a **seven-year-long voyage**.
- It was meant to explore [asteroid Benu](#).
- The spacecraft contains **five instruments** including cameras, a spectrometer, and a laser altimeter.
- The spacecraft arrived at **Benu in December 2018**.
- It Surveyed the asteroid for more than two years.
 - **Benu** is an ancient asteroid, currently more than 200 million miles from Earth.
 - The asteroid was discovered by a team from the **NASA-funded Lincoln Near-Earth Asteroid Research team** in 1999.
- It offers scientists a window into the **early solar system** as it was first taking shape billions of years ago and tossing ingredients that could have helped seed life on Earth.
- On **Oct. 20, 2020**, the spacecraft **collected a sample** from the asteroid and stowed it in its sample return capsule.
- The pristine material from Benu – rocks and dust collected from the asteroid's surface will offer generations of scientists a window into the time when the Sun and planets were **forming about 4.5 billion years ago**.

MUST READ: [Exoplanets](#)

SOURCE: [DOWN TO EARTH](#)

Kawar Lake

Context: Recent reports show that Bihar's **Kawar Lake** has been neglected and is on the brink of drying up.

Background:-

- While Bihar has many wetlands, only one is recognized Kawar Lake.

About Kawar Lake:-

- **Location:** Begusarai, Bihar.
- It is also known as **Gokhur Lake** or [Kabartal Wetland](#).
- It is a **residual oxbow lake** formed by the changing course of the **River Gandak**.
- It is the **largest freshwater oxbow lake in Asia**.
- It was declared a **Ramsar site** in August 2020. ([COP14 of Ramsar Convention on Wetlands](#))
- It was declared a notified area under the **Wildlife (Protection) Act of 1972**.
- To check the poaching of birds, it was declared a **protected zone by the Bihar** state government in 1986.

- The government of India declared it a **bird sanctuary in 1989**.
- It is one of the most important wetlands for waterfowl in **the Indo-Gangetic Plain**.
- It supports huge numbers of **migratory ducks** and Coot through the winter, as well as large concentrations of **resident species** such as ruficollis and Asian Openbill.
- The lake has been home to **58 migratory birds**.
- It served as an important stopover along the **Central Asian Flyway** with at least 58 migratory water birds.

Threats:-

- Encroachment
- Conflicts between farmers and fisherfolk
- Illegal activities exacerbate the degradation.
- The lake has been experiencing a steady decrease in water levels **since 2010**.
- The lake faces challenges due to **policy implementation gaps, illegal activities like migratory bird hunting, and a lack of effective conservation measures**.

About Gandak River:-

- It is a tributary of the **Ganga**.
- The Gandaki River system lies in the central part of Nepal.
- Its river basin is also referred to as the **Narayani river system**.
- It is a **transboundary river system**, originating from the Tibetan Plateau, flowing through central Nepal and draining into the Ganges River in India.
- About 69% of the total area **lies in Nepal**.
- It is the **second-largest river basin of Nepal**.
- **Tributaries:** Marsyangdi, Daraudi, Seti, Madi, Kali Gandaki, Budi Gandaki and Trishuli are the seven major tributaries of the Gandaki river basin.
- It flows southwest into India and then turns southeast along the **Uttar Pradesh–Bihar state border** and across the Indo-Gangetic Plain.

MUST READ: [\(India Designates 5 New Ramsar Sites\)](#)

SOURCE: [DOWN TO EARTH](#)

Amazon Rainforest

Context: Recently, in Brazil's **Amazon Rainforest**, rivers have fallen to record low levels during drought.

Background:-

- The record confirms that this part of the world's largest rainforest is suffering its worst drought, just a little over two years after its most significant flooding.

About Amazon Rainforest:-

IMAGE SOURCE: [IASBABA](#)

- **Location:** South America.
- **Temperatures :** 20°C and 35°C.
- The name 'Amazon' was given by Spanish explorer **Francisco Orellana**, after he was attacked when exploring the region by female warriors named the Icamiabas, or 'women without husbands'.
 - He compared them to **the Amazons of Greek mythology**.
- The Amazon rainforest covers some **40%** of the South American continent.
- It is in 9 countries: Brazil, Colombia, Peru, Venezuela, Ecuador, Bolivia, and the three Guyanas.
- They are the **world's largest tropical rainforests**.

- They occupy the **drainage basin of the Amazon River and its tributaries** in northern South America.
- As of 2021, the **Amazon had 74% of its area** covered by tropical rainforests and 9% of other natural vegetation types.



- They are home to nearly **a fifth of the world's land species** and over 45 million people.

- The rainforest of the Amazon is home to 400–500 **indigenous Amerindian tribes**. ([Amazon Cooperation Treaty Organization \(ACTO\)](#))

- Tropical forests are closed-canopy forests growing within 28 degrees north or south of

the equator.

- They are very **wet places**, receiving more than 200 cm of rainfall per year, either seasonally or throughout the year.

Significance:-

- It is the source of **20% of the oxygen** used by the planet.
- **25% of all Western pharmaceuticals** come from rainforest-based ingredients.
- **More than 80% of the world's food** has its origins in the Amazon rainforest.
- An estimated **30% of the world's species** live in the Amazon.
- Around **30% of our carbon emissions** come from burning the Amazon rainforest.

MUST READ: [Deforestation in Amazon Basin](#)

SOURCE: [THE HINDU](#)

Ring of Fire eclipse

Context: The 'Ring of Fire' eclipse was observed across the Americas recently.

Background:-

- It first came to the darkening skies, then the crescent-shaped shadows on the ground, and finally an eruption of cheers by crowds that gathered Saturday along the narrow path of a rare “ring of fire” eclipse of the Sun.

About Ring of fire eclipse:-

- A [Solar Eclipse](#) happens when the **moon comes in between the sun and the Earth**, due to which the **moon blocks the sun's light** from reaching the Earth, causing an [eclipse](#).
- There are **three main types** of solar eclipses: total, partial, and annular.
- **Total solar eclipse:** It occurs when the Moon entirely blocks the Sun, creating a breathtaking sight as the Earth is engulfed in darkness.
- **Partial solar eclipse:** It happens when the Moon only partially covers the Sun, casting a mesmerizing dance of light and shadow on the Earth's surface.
- **Annular solar eclipse:** It results in the captivating “Ring of Fire” phenomenon, where the Moon's smaller apparent size creates a stunning golden ring around the darkened Sun.

- It occurs when the **moon is farthest from the Earth**, making it appear smaller than the sun.
- It happens when the moon **does not fully cover** the disk of the sun, leaving a thin outer ring often called a "ring of fire."
- This eclipse doesn't darken skies the way the total solar eclipse does.
- The next ring of fire eclipse is in October next year at the southernmost tip of South America. Antarctica gets one in 2026.

MUST READ: [Ningaloo Eclipse 2023](#)

SOURCE: [THE HINDU](#)

Amazon River

Context: The **Amazon River** has been undergoing drought in recent times.

Background:-

- The drought plaguing the Amazon is a worrying portrait of the climate challenges facing the world.
- Understanding the causes and the need for an immediate action plan to save the biome.

About Amazon River

IMAGE SOURCE: [blogspot.com](#)



- **Location: South America.**
- The Amazon River is located in the **Amazon Rainforest** in the northern portion of South America.
- It originates high in the **Andes Mountains** of Peru.
- It flows **eastwards on a meandering 4,000-mile (6,400 km) journey**.
- One-third of its length in **Peru** and two-thirds in **Brazil**, before emptying into the **Atlantic Ocean** on Brazil's northeastern coast.
- The Amazon River is separated into

three sections: the Upper Amazon, Lower Amazon, and Mouth.

- **The Upper Amazon:** refers to the river systems and flood plains in Brazil, Peru, Ecuador, Colombia, and Venezuela, whose waters pour into the Solimes and its tributaries.
- **The Lower Amazon:** starts where the darkly coloured Rio Negro meets the sandy-hued Rio Solimes (the upper Amazon).
- Guyana, Ecuador, Venezuela, Bolivia, Brazil, Colombia, and Peru are all crossed by the Amazon.
- The Amazon River has nearly 1,100 tributaries.
- It is the **second longest river** in the world after the Nile.
- It is the **greatest river in South America**.
- It is the **largest drainage system in the world** in terms of the volume of its flow and the area of its basin.
- According to the Encyclopedia Britannica, the Amazon River carries nearly **one-fifth of all the water** that runs across the Earth's surface.

- It contains the **most freshwater fish species** in the world, with more than 2700 species, around 1700 of which are endemic.
- An **entire coral reef system** was discovered by researchers at the Amazon River Delta in 2016. ([Deforestation in Amazon Basin](#))

MUST READ: [Yellow River](#)

SOURCE: [DOWN TO EARTH](#)

Orion Nebula

Context: Pairs of rogue planets have been found wandering in the **Orion Nebula** recently.

Background:-

- More than 500 free-floating planetary-mass objects have been discovered wandering through the Orion Nebula thanks to new observations by the James Webb Space Telescope (JWST).

About Orion Nebula:-

- The Orion Nebula, also known as **Messier 42 (or M42 for short)**.
- It was **discovered in 1610** by the French scholar **Nicolas-Claude Fabri de Peiresc** and independently in 1618 by the Swiss astronomer **Johann Cysat**. ([International Space Station \(ISS\)](#))
- It was the **first nebula to be photographed (1880)**, by Henry Draper in the United States.
- It is the **nearest star-forming region** to Earth.
- It is located **approximately 1,350 light-years away**.
- It is **about 2 million years old** according to NASA Jet Propulsion Laboratory.
- It contains hundreds of very hot (**O-type**) **young stars** clustered about a nexus of four massive stars known as the Trapezium.
- Radiation from these stars excites the nebula to glow.
- The billowing clouds of gas and dust are located in the Orion Constellation, just below Orion's Belt.
- The majestic nebula **can even be seen with the naked eye** as it has an apparent magnitude of +4.
- The Orion Nebula is part of a larger stellar network called **the Orion Molecular Cloud Complex** (also known as the Orion Complex), one of the **most active star-forming regions** visible in the sky.
- The **ancient Maya of Mesoamerica** interpreted the nebula as the cosmic fire of creation, according to NASA.

MUST READ: [India – USA space cooperation](#)

SOURCE: [PHYSICSWORLD](#)

Earth's core

Context: Recent studies show evidence of the leaking of **Earth's core**.

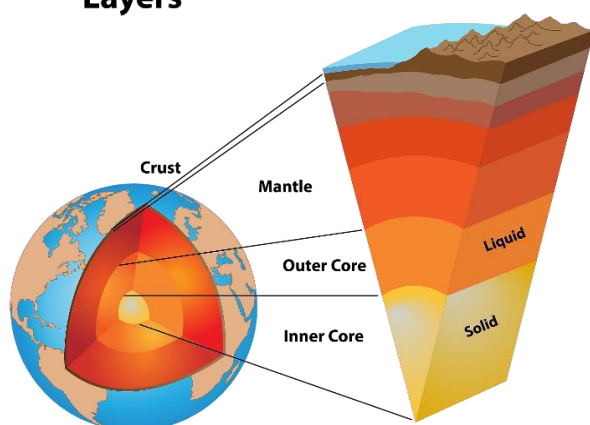
Background:-

- Record concentrations of a helium isotope found inside 62-million-year-old Arctic rocks could be the most compelling evidence to date of a slow leak in our planet's core.
- Building on the results of a previous analysis of ancient lava flows, a team of geochemists from Woods Hole Oceanographic Institution and the California Institute of Technology are now more certain than ever that helium trapped in the core as our planet was forming is making its way to the surface.

About Earth's core:-

IMAGE SOURCE: [WorldAtlas](#)

Earth's Layers



- The Earth can be divided into one of two ways: **mechanically or chemically**.
- Mechanically (or through the study of liquid states)– it can be divided into the **lithosphere, asthenosphere, mesospheric mantle, outer core, and inner core**.
- Chemically (or by composition), which is the more popular of the two, it can be divided into **the crust, the mantle (subdivided into the upper and lower mantle), and the core (subdivided into the outer core, and inner core.)**

The Crust

- The Crust is the cold, fragile, and **rock-based outer layer**.
- There are two types of crust, each with unique physical and chemical characteristics: **(i) continental crust; and (ii) oceanic crust**.
- Basalt lava flows are produced when magma under the seafloor erupts, forming the **oceanic crust**.
- The **oceanic crust is 5 km thinner** than the continental crust (about 30 km).
- **Silica (Si) and Aluminum (Al)** are the two main components of the crust.

Mantle

- The mantle is the **layer beneath the crust**.
- The **Mohorovich Discontinuity** is the separation between the crust and mantle.
- The mantle has a thickness of around **2900 km**.
- Approximately **84% of the earth's volume and 67% of its mass** are made up of the mantle.
- It is primarily composed of **silicon and magnesium**.
- The entire crust and the topmost solid portion of the mantle comprise the **Lithosphere**.
- An extremely vicious, weakly elastic, ductile, deforming zone of the upper mantle, **the asthenosphere** (between 80 and 200 km), is located just beneath the lithosphere.

Core

- It is the layer that surrounds the earth's core that is the **deepest**.
- **Guttenberg's Discontinuity** divides the mantle from the core.
- It is also **called NIFE** since it contains nickel (Ni) and iron (Fe).
- Nearly **15% of the earth's volume and 32.5 per cent of its mass** are made up of the core.
- The **density** of the earth's core fluctuates around **9.5 and 14.5 g/cm³**.
- The inner core and the outer core are the sub-layers that make up the Core.
- The **inner core is solid**, but the **outer core is liquid** (or semi-liquid).

MUST READ: [Supermoon](#)

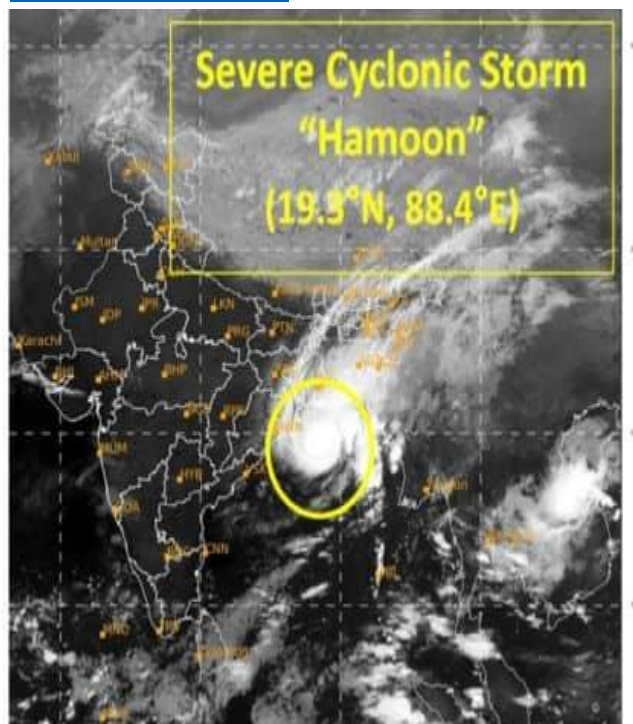
SOURCE: [SCIENCE ALERT](#)

Hamoon

Context: The cyclonic storm “Hamoon” that formed over the Bay of Bengal has rapidly intensified into a severe cyclonic storm as per recent reports.

About Hamoon:-

IMAGE SOURCE: [THE INDIAN EXPRESS](#)



- Cyclone Hamoon is brewing near India over the **Bay of Bengal**.

- **Southern states** in India are likely to witness rainfall this week

- According to the India Meteorological Department (IMD), a deep depression over the West central Bay of Bengal likely to intensify into a Cyclonic Storm during the next 6 hours. ([Colour Coded Weather Warning](#))

- Cyclones Tej and Hamoon are considered

to be **twin cyclones** that developed over the north Indian Ocean.

- The last such twin cyclones ‘Luban’ and ‘Titli’ were recorded in 2018.

About Cyclone:-

- A cyclone is a pattern of winds (or air mass) that circulates a **low-pressure system**.
- It rotates **counterclockwise in the Northern Hemisphere** and **clockwise in the Southern Hemisphere**.
- It is typically associated with **wet and stormy weather**. ([Naming of Cyclone](#))

Classification:-

- There are two types of cyclones:
 - Tropical cyclones and
 - Extra-tropical cyclones (also called Temperate cyclones)

Tropical cyclone:-

- It is an **intense circular storm** that originates over **warm tropical oceans**.
- It is characterized by **low atmospheric pressure, high winds, and heavy rain**.
- These are formed over **slightly warm ocean waters**.
- The temperature of the top layer of the sea, up to a depth of about 60 meters, needs to be **at least 28°C** to support the formation of a cyclone.
- **April-May and October-December** periods are conducive for cyclones.
- Then, the low level of air above the waters needs to have an ‘**anticlockwise**’ rotation (in the northern hemisphere; clockwise in the southern hemisphere).
- During these periods, there was an **ITCZ in the Bay of Bengal**.

Extratropical cyclones:-

- It occurs in temperate zones and high-latitude regions, though they are known to originate in the Polar Regions.
- These are active above the **mid-latitude region** between 35° and 65° latitude in both hemispheres.
- The direction of movement is from west to east and is more pronounced in the **winter seasons**.

MUST READ: [Bomb Cyclone](#)

SOURCE: [DOWN TO EARTH](#)

Hurricane Otis

Context: Hurricane Otis recently made landfall on the coast of southern Mexico.

Background:-

- In Mexico, Hurricane Otis has made landfall on the coast of southern of the country, bringing wind speeds of up to 270 kilometres per hour.

About Hurricane Otis:-

- Hurricane Otis had strengthened rapidly, going from a tropical storm to a Category 5 hurricane in 12 hours, catching many off guard.
- Otis also **became the first Category 5 landfall** for the East Pacific, according to the National Oceanic and Atmospheric Administration's Hurricane Database, surpassing the 2015 Hurricane Patricia, which made landfall as a Category 4 storm.
- This made Otis the **fastest intensifying hurricane** in the Eastern Pacific since 1966. ([Naming of Cyclone](#))

About Hurricane:-

- Hurricanes are **tropical storms that form in the Atlantic Ocean**.
- **Wind speeds:** at least 119 kilometres (74 miles) per hour.
- Hurricanes derive their energy from the **heat released when moist air rises and condenses** into clouds and rain.

Key characteristics of hurricanes:-

- Hurricanes form over **warm ocean waters** when the sea surface temperature is typically **above 26 degrees Celsius (79 degrees Fahrenheit)**.
- **Low-Pressure Centre:** Hurricanes have a well-defined centre of low atmospheric pressure, known as the **eye**.
- **Strong Winds:** winds can reach sustained speeds of at least **74 miles per hour (119 kilometres per hour) or higher**.
- Heavy Rainfall.

MUST READ: [Climate Change fuelling Hurricanes](#)

SOURCE: [THE INDIAN EXPRESS](#)



Environment and Ecology



Badis limaakumi

Context: Recently, a new species of fish *Badis limaakumi*, was discovered in Nagaland.

Background:-

- Scientists have recently discovered a new fish species from the **Milak River, Nagaland.**

About *Badis limaakumi*:-

- **Family:** *Badidae*.
- **Genus:** *Badis*.
- **Location:** Nagaland, Northeast India.
- It was found in Nagaland's **Malak River**.
- **Habitat:** It is found in various freshwater habitats, including rivers, ponds, and marshes.
- **Distribution:** These fish are primarily found in freshwater bodies across **northern India, Pakistan, Bangladesh, Bhutan, and Nepal.**
- Around **25 recognized species**, 15 of which are in India.
- **Naming:** it has been named after **Limaakum, assistant professor** and head of the zoology department at Fazl Ali College, Nagaland.
- **Unique feature:** This fish can change its colour like a chameleon.
- It belongs to the often-called **Chameleon fish** for their ability to rapidly change colors during breeding, camouflage, or stress. ([National Surveillance Programme for Aquatic Animal Diseases \(NSPAAD\)](#))
- **Local Names:** "Tepdang" and "Sempi,".
- **Physical Features:-**
 - It has a **large and slender body**.
 - It **lacks blotches** on its sides and fins and possesses a significant number of lateral-line scales.
- **Diet:** These fish are predatory by nature and primarily **feed on small freshwater invertebrates.** ([Zebrafish](#))

About Milak River:

- Milak River is situated in Mokokchung district in Nagaland, India.
- The nearest town to this river is Naga Town.
- Main tributary of Milak River is **Tsurong**.

MUST READ: [Puffer Fish](#)

SOURCE: [DOWN TO EARTH](#)

Dandeli Wildlife Sanctuary

Context: Recent studies show that **Dandeli Wildlife Sanctuary** is losing its distinctive grasses & and hornbills to erratic weather.

Background:-

- Rising temperature, and changing rainfall patterns may have affected the growth of plants essential to the native ecosystem.

About Dandeli Wildlife Sanctuary:-

IMAGE SOURCE: [traveltriangle.com](https://www.traveltriangle.com)

- Location: Uttara Kannada District, Karnataka.



- Area: 834.16 square kilometers.
- The Dandeli sanctuary covers part of the rich forests of the Uttara Kannada District.
- It lies on the banks of the **river Kali**.
 - The Kali River or **Kaali Nadi** is a river flowing through Uttara Kannada district of Karnataka state in India.
 - The river **rises near Kushavali**, a small village in Uttar Kannada district.
 - Mouth: **Arabian Sea**.
 - The Kali exits at **Supa Dam** near Kurandi then flows east towards Dandeli.

- In the jungles of Dandeli, one can spot several animals as well as birds including many endangered species.
- The government declared the Dandeli forest, a **National Wildlife Sanctuary in 1956**.
- This sanctuary is the **second-largest** wildlife sanctuary in Karnataka.
- Along with its adjoining Anshi National Park, Dandeli is an **abode of 40 tigers**.
- **Cultural attractions:** Kavala caves, Magod Falls, Molangi Falls, Syntheri Rock, Shivaji Fort.
- **Flora:** Eucalyptus, Tectona grandis, Grevillea robusta, T. bellerica, Adina cordifolia, Mitragyna parviflora, Acacia etc.
- **Fauna:** Malabar Giant Squirrel or Ratufa Indica, Barking Deer, Gaur, Indian Pangolin, tigers, flycatchers, woodpeckers, etc.

MUST READ: [Wildlife Protection](#)

SOURCE: [DOWN TO EARTH](#)

Sendai Framework

Context: Heavy rains that led to a landslide in Uttarakhand last week brought back the significance of implementing the **Sendai Framework**.

About Sendai Framework:-

- **Adopted:2015.**
- **Adopted in Sendai, Japan.**
- **Duration: 2015-2030.**
- The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the **Third UN World Conference in Sendai, Japan**.
- It applies to the risk of **small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters** caused by natural or man-made hazards, as well as related environmental, technological, and biological hazards and risks.
- It is the **outcome of stakeholder consultations** initiated in March 2012 and inter-governmental negotiations from July 2014 to March 2015, supported by the United Nations Office for Disaster Risk Reduction at the request of the UN General Assembly.

- It is a 15-year, **voluntary, non-binding agreement** that recognizes that the State has the primary role to reduce disaster risk.
- It aims for the substantial **reduction of disaster risk** and losses in lives, livelihoods, and health.

Historical Background:-

- The Sendai Framework is the **successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters**.
- The HFA was conceived to give further impetus to the global work under the International Framework for Action for the International Decade for Natural Disaster Reduction of 1989, and the Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action, adopted in 1994 and the International Strategy for Disaster Reduction of 1999.

Four Priority Areas:-

- **Understanding Disaster Risk:** To promote the collection, analysis, and management.
- **Strengthening disaster risk governance to manage disaster risk:** To carry out an assessment of the technical, financial, and administrative disaster risk management capacity.
- **Investing in disaster risk reduction for resilience:** To allocate the necessary resources.
- **Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation, and reconstruction:** To establish community centers for the promotion of public awareness and the stockpiling of necessary materials.

The Seven Global Targets:-

To support the assessment of global progress in achieving the outcome and goal of the present Framework, seven global targets:-

- **Target 1 to reduce mortality:** The first target aims to substantially reduce global disaster mortality by 2030, with an aim to lower the average per 100,000 global mortality rate in the decade 2020-2030 compared to the period 2005-2015.
- **Target 2 to reduce the number of affected people:** The second target aims to reduce the number of affected people globally by 2030, with a target to lower the average global figure per 100,000 in the decade 2020 -2030 compared to the period 2005-2015.
- **Target 3 to reduce direct disaster economic loss:** It aims to reduce loss in global gross domestic product (GDP) due to disaster by 2030.
- **Target 4 to substantially reduce disaster damage to critical infrastructure and disruption of basic services:** This includes reducing damage to health and educational facilities through developing their resilience by 2030.
- **Target 5 to spread disaster risk efforts:** It envisages substantially increasing the number of countries with national and local disaster risk reduction strategies by 2020.
- **Target 6 to increase cooperation and support:** It aims to enhance international cooperation with developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
- **Target 7 to increase accessibility:** It aims to substantially increase the availability and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030. ([National Disaster Management Authority \(NDMA\)](#))

MUST READ: [Millennium Development Goals \(MDGs\)](#)

SOURCE: [THE INDIAN EXPRESS](#)

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

Context: A new report by the **United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)** has put forward 10 principles.

Background:-

- The Sustainable Finance: Bridging the Gap in Asia and the Pacific report was launched on October 6, 2023.
- **Objective:** These principles are for the action of policymakers, regulators, and private finance for mobilizing and deploying financing for key UN-mandated Sustainable Development Goals, particularly around climate action.
- **Significance:** The principles will help stakeholders cooperatively and efficiently shift and scale up capital to finance climate action by reducing obstacles, addressing climate risk underpricing, and reducing sectoral and regional capital-investment mismatches.
- The principles put forward are:-
 - Developing new climate finance partnerships
 - Developing effective NDC financing strategies
 - Developing policy coherence and capacities across key government ministries
 - Taking decisive regulatory action to shift capital in Asia and the Pacific towards the Net Zero transition
 - Driving investment in the capacities of financial personnel
 - Driving investment in much-needed sectoral and project-based financial data is undertaken
 - Committing to Net Zero pledges for 2050 with credible transition pathways and including 2030 goals
 - Increasing local-currency financing of energy transition projects as well as green technologies and other net-zero investments
 - Expanding and accelerating concessional financing and risk-sharing by multilateral development banks, bilateral development financial institutions, and public development banks
 - Increasing investment of time and effort with partners in project preparation

About United Nations Economic and Social Commission for Asia and the Pacific (ESCAP):-

- **Founded in 1947.**
- **HQ: Bangkok, Thailand.**
- The Economic and Social Commission for Asia and the Pacific (ESCAP) is one of the **five regional commissions of the United Nations**. [\(Need for Reforms in UN\)](#)
- It is the **most inclusive intergovernmental platform in the Asia-Pacific region**.
- **Objective:** to facilitate coordinated efforts for the economic recovery and advancement of Asia and the Far East in the post-war period.
- **Historical Background:** In 1974, it was **restructured and renamed** the Economic and Social Commission for Asia and the Pacific (ESCAP), reflecting its dual focus on economic and social aspects of development.
- **Members:** ESCAP comprises **53 Member States** and **nine Associate members**.

Functions:-

- To enhance **economic activity in Asia and the Pacific**, foster economic relationships between this region and other global areas, and promote sustainable development.

- To Coordinate Development Efforts.
- It **promotes cooperation among its 53 member States and 9 associate members** in pursuit of solutions to sustainable development challenges.
- It generates action-oriented knowledge, and by providing **technical assistance and capacity-building services** in support of national development objectives, regional agreements, and the implementation of the 2030 Agenda for Sustainable Development.
- It also provides **support to partners** at the national level.
- It carries out work, in close cooperation with other **United Nations entities and intergovernmental organizations** in the region.

MUST READ: [United Nations grants observer status to International Solar Alliance](#)

SOURCE: [DOWN TO EARTH](#)

Methane emission

Context: A recent study states that cutting down on **Methane emission** by Targeted methane mitigation can avoid 0.1°C warming in 2050.

Key Highlights of the report:-

- The report was released jointly by the **International Energy Agency, the United Nations Environment Programme (UNEP) and the UNEP-convened Climate and Clean Air Coalition.**
- Around 580 million tonnes (Mt) of methane is emitted every year globally, **60 per cent of which comes from human activities**, according to the latest assessment.
- Under current trajectories, total anthropogenic methane emissions **could rise by up to 13 per cent between 2020 and 2030.**
- The report called for **rapid cuts in methane emissions** from fossil fuels as it will prevent global warming to an extent greater than the emissions impact of immediately taking all cars and trucks in the world off the road.
- It urged that methane abatement measures should be **above and beyond the decarbonization efforts** for the energy sector.
- Without targeted action on methane, even with deep reductions in fossil fuel use, the increase in the global average surface temperature will likely exceed 1.6°C by 2050.
- The fossil fuel sector likely holds the largest potential for rapid and low-cost reductions in methane emissions.
- **More than 80 Mt of annual methane emissions** from fossil fuels can be avoided by 2030 using existing technologies, often at low – or even negative – costs.
- Around \$75 billion is required by 2030 for all methane abatement measures in the oil and gas sector in the Net Zero scenario, according to the findings. “This is equivalent to less than 2 per cent of the income generated by the oil and gas industry in 2022,”.
- Controlling methane emissions will also provide **health benefits** and **enhance food security.**

About Methane Emission:-

- Methane (CH₄) is the **simplest hydrocarbon**, consisting of one carbon atom and four hydrogen atoms.
- It is a **colorless, odorless, and highly flammable gas**, and the main component in natural gas.
- It is such a **potent heat absorber.**
- It is the primary **component of natural gas.**
- It is a **powerful greenhouse gas.**

- It warms the planet **more than 80 times** as quickly as a comparable volume of atmospheric CO₂ over a comparable amount of time.
- It is estimated to have been responsible for **30 per cent of global warming** since the Industrial Revolution.
- Methane pollution, which is a **primary component of ground-level ozone**.
- It has been linked to **heart disease, birth defects, asthma and other adverse health impacts**.

Sources of Methane:-

- **Biological Sources:** it is made from some organic compounds by methane-generating microbes known as **methanogens**.
- **Agriculture:** Livestock emissions from manure and gastroenteric releases account for roughly 32% of human-caused [methane emissions](#).
 - Cows also belch out methane.
- **Emissions from Fuel and Industries.**

Initiatives to reduce methane emission:-

- **COP 26 Pledges:** At COP26 in Glasgow, over 100 countries signed an agreement to cut methane emissions by 30% by 2030 as methane might be easier to deal with than carbon dioxide.
- **MethaneSAT:** a planned American-New Zealand space mission scheduled for launch later in 2022.
 - It will be an Earth observation satellite that will monitor and study global methane emissions in order to combat climate change.
- **UN Initiatives:** The UN Food Systems Summit in September 2021 was also aimed at helping make farming and food production more environmentally friendly.
- **India's Initiative:** Central Salt & Marine Chemical Research Institute (CSMCRI) in collaboration with the country's three leading institutes developed a seaweed-based animal feed additive formulation that aims to reduce methane emissions from cattle.

MUST READ: [Methane Alert and Response System \(MARS\)](#)

SOURCE: [DOWN TO EARTH](#)

Ruddy Shelduck

Context: Ruddy Shelduck, recently arrived for a winter stay.

Background:-

- The first batch of about 50 members of the Ruddy Shelduck, popularly known as 'Surkhab' birds, arrived for a six-month winter stay.

About Ruddy Shelduck:-

- **Scientific name:** *Tadorna ferruginea*.
- **Family:** Anatidae.

Distribution:-

- **CONTINENTS:** Europe, Asia, Africa.
- **COUNTRIES:** China, South Korea, Mongolia, Spain, Albania, Bulgaria, Denmark, Greece, Italy, Romania.
- **ISLANDS:** Canary Island.
- **Habitat:** The Ruddy Shelducks inhabit large wetlands, lakes, rivers with mudflats and shingle banks.
- **Diet:** They feed on roots, shoots, buds, grasses, leaves, seeds and stems.

Legend:-

- Legend has it that two people fell in love but the Gods did not approve of their alliance and **transformed them into Ruddy Shelducks** and placed them on opposite shores of a river, with a curse that they could never meet.

Features:-

- The ruddy shelduck known in India as the **Brahminy duck**.
- It is a **migratory bird**.
- It is a distinctive **waterfowl**. ([Bird flu](#))
- It is **58 to 70 cm** (23 to 28 in) in length with a wingspan of **110 to 135 cm** (43 to 53 in).
- It has **orange-brown body** plumage with a paler head.
- The **tail and the flight feathers** in the wings are **black**, contrasting with the white wing coverts.
- These shelducks are fairly **large birds**.
- The **males are larger** than the females.
- It has a **loud honking call**.
- The ruddy shelduck is a mainly **nocturnal bird**.
- It is **omnivorous** and feeds on grasses, the young shoots of plants, grain and water plants as well as both aquatic and terrestrial invertebrates.
- It visits the **Indian subcontinent** and breeds in southeastern Europe and central Asia, though there are small resident populations in North Africa.

MUST READ: [Aztec hummingbirds](#)

SOURCE: [THE INDIAN EXPRESS](#)

Air Quality Index (AQI)

Context: Recently, Mumbai's overall Air **Quality Index (AQI)** touched 191, which was worse than Delhi's 84.

Background:-

- The SAFAR app on Monday showed AQI levels in multiple pockets of Mumbai going down to the "poor" category, with most of these pockets being in the suburban belt of the city.

About Air Quality Index (AQI):-**IMAGE SOURCE:** [aqi.in](#)

- Air Quality Index (AQI) is a number used by government agencies to **measure air pollution levels** and communicate it to the population. ([Air pollution](#))
- There are **six AQI categories**, namely **Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe**.
- Each of these categories is decided based on ambient **concentration values of air pollutants** and their likely health impacts (known as health breakpoints).
- **AQ sub-index and health breakpoints** are evolved for **eight pollutants (PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Pb)** for which short-term (up to 24-hours) National Ambient Air Quality Standards are prescribed.
- As the AQI increases, it means that a **large percentage of the population will experience severe adverse health effects**.
- The measurement of the AQI requires an air monitor and an air pollutant concentration over a specified averaging period.
- The **results are grouped into ranges**.
- Each range is assigned a descriptor, a **colour code** and a standardized public health advisory.

- The pollution sources in India and in most Asian countries are **numerous** and incompletely understood.
- In Delhi, for example, it comes mostly from light and **heavy-duty vehicle traffic emissions, road dust, solid fuel combustion for heating and cooking, biomass, waste burning, thermal power plants, diesel generators, construction and small-scale local industries.** ([Delhi and Air Pollution](#))

Government Initiatives:-

AQI LEVEL	HEALTH ISSUES	WHAT DOES IT MEAN?
0-50	Good	The air quality is safe and poses no health risks to anyone.
51-100	Unhealthy	The air quality is fine. However, sensitive people are still prone to health risks due to minor pollutants present in the air.
101-150	Poor	People who are sensitive to the air pollution are at health risk. The air quality is safe for healthy fit people.
151-200	Severe	Fit and healthy people will catch hold of infections and viral due to many harmful air pollutants present in the air. Highly sensitive people are exposed to severe health risk.
201-300	Dangerous	The contaminated air threatens everyone with various health issues.
301-500	Hazardous	High Alert Emergency: This level of air quality is a serious threat to life both for sensitive and healthy people. It can severely affect the health or even lead to death.

• **The National Air Quality Index Standard (NAQI):**

It was launched by The Minister for Environment, Forests & Climate Change, Shri Prakash Javadekar, on 17 September 2014.

- The initiative constitutes part of the Government's mission to introduce the "culture of

cleanliness", as air pollution has been a huge concern in the country, especially in urban areas

- **The National Air Monitoring Program (NAMP):** it covers 240 cities in the country, has been operated by the Central Pollution Control Board (CPCB) and developed by the Indian Institute of Technology, Kanpur (IIT), providing data in the public domain, on a real-time basis.
- System of Air Quality and Weather Forecasting and Research (SAFAR) Portal.
- [Graded Response Action Plan.](#)
- [Commission for Air Quality Management \(CAQM\)](#)
- **Reducing Vehicular Pollution:** BS-VI Vehicles, Push for Electric Vehicles (EVs), Odd-Even Policy as an emergency measure.
- **Subsidy to farmers** for buying Turbo Happy Seeder (THS) Machine.

MUST READ:: [Initiatives and Measures for Prevention of Air Pollution](#)

SOURCE: [THE INDIAN EXPRESS](#)

Regional Rapid Transit System (RRTS)

Context: Prime Minister Narendra Modi recently inaugurated the country's first **Regional Rapid Transit System (RRTS)** called **Namo Bharat** in Ghaziabad.

Background:-

- It is capable of running at speeds **up to 180 km/hour** which will eventually cut the journey time between **Delhi and Meerut to less than an hour.**

About Regional Rapid Transit System (RRTS):-

IMAGE SOURCE: [THE INDIAN EXPRESS](#)

FASTER THAN METROS, MORE FREQUENT THAN TRAINS

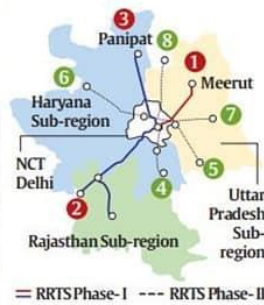
 **180 km/hr** DESIGN SPEED **160 km/hr** OPERATION SPEED **100 km/hr** AVERAGE SPEED




60 Min
TIME TO TRAVEL 100KM

CORRIDORS- UNDER RRTS PHASE I

- ① Delhi – Ghaziabad – Meerut Corridor
- ② Delhi – Gurugram – SNB – Alwar Corridor
- ③ Delhi – Panipat Corridor



OTHER CORRIDORS

- ④ Delhi – Faridabad – Ballabhgarh – Palwal
- ⑤ Ghaziabad – Khurja
- ⑥ Delhi – Bahadurgarh – Rohtak
- ⑦ Ghaziabad – Hapur
- ⑧ Delhi – Shahadra – Baraut

- **Launched:** October, 2023.

- **Constructed by:** The National Capital Region Transport Corporation (NCRTC).

- **NCRTC:** It is a joint venture company of the Central government and the governments of Delhi, Haryana, Rajasthan and Uttar Pradesh.

- **Ministry:** Ministry of Housing and Urban Affairs.

- **Objective:** to ensure “balanced and sustainable urban development” through better connectivity and access across the NCR.
- It is a state-of-the-art **regional mobility solution**, comparable to the best in the world.

Historical Background:-

- The idea of such a network lies in a study that the Indian Railways was commissioned to carry out in the **year 1998-99**.
- The study identified the **possibility of an RRTS network to connect various locations in the NCR** through fast commuter trains.
- The proposal was **re-examined in the year 2006** with the extension of the Delhi Metro lines to some NCR towns such as Gurgaon, Noida and Ghaziabad.
- It was soon taken up by the **National Capital Region Planning Board (NCRPB)** while developing its “Functional Plan on Transport for NCR-2032”.

Salient Features:-

- Rapid Transit System (RRTS) is also known as **Namo Bharat**.
- It is an **integrated, mass transit network**.
- The RRTS is modelled on systems such as the RER in Paris, Regional-Express trains in Germany and Austria as well as the SEPTA Regional Rail in the United States, among others.
- In line with **PM GatiShakti's National Master Plan**, the RRTS network is to have extensive **multi-modal integration with Railway stations, Metro stations, Bus services etc**.
- **Eight corridors** will be developed under the project, of which three are being constructed under **phase I**: the 82-km Delhi-Ghaziabad-Meerut, the 164-km Delhi-Gurugram-SNB-Alwar, and the 103-km Delhi-Panipat corridors.
- The corridors to be developed in future include **Delhi – Faridabad – Ballabgarh – Palwal; Ghaziabad – Khurja; Delhi – Bahadurgarh – Rohtak; Ghaziabad-Hapur; and Delhi-Shahadra-Baraut**.

Advantages:-

- The development of RRTS will **boost economic activity**. ([National Rail Plan for Infrastructure Capacity Enhancement](#))
- It will provide improved access to **employment, education & healthcare opportunities**.
- It will help in the significant **reduction of air pollution**.
- The RRTS network is **faster than the Metro**.

- It will cater to commuters who want to **travel relatively longer distances** across the NCR in a short time.

MUST READ: [Rail Kaushal Vikas Yojana](#)

SOURCE: [THE HINDU](#)

Buff-breasted Sandpiper

Context: A rare bird from the arctic tundra **Buff-breasted Sandpiper** was sighted in Kannur, Kerala recently.

About Buff-breasted Sandpiper:-

- **Scientific Name:** *Calidris subruficollis*.
- **Distribution:** It breeds in the open arctic tundra of North America and winters usually in South America.
- **Habitat:** Shortgrass prairies; in summer, tundra ridges.
- It is a **small shorebird**. ([Kerala Bird Atlas \(KBA\)](#))
- This species is **brown** above and has a buff face and underparts in all plumages.
- It has a **short bill and yellow legs**.
- **Males are larger** than females.
- Juveniles resemble the adults but may be paler on the rear underparts.
- This species is a champion **long-distance migrant**, travelling thousands of miles from their high-Arctic nesting grounds to winter on the grasslands of Brazil, Argentina, Uruguay, and Paraguay.

Conservation status:-

- IUCN: Near Threatened

MUST READ: [H5N1 virus/Bird Flue](#)

SOURCE: [THE HINDU](#)

Fukushima

Context: Scientists recently, tested the fish after water release from the **Fukushima nuclear plant**.

Background:-

- A team of international scientists collected fish samples from a port town near Japan's crippled Fukushima nuclear plant, seeking to assess the impact of the plant's recent release of treated radioactive water into the sea.

About the Fukushima nuclear plant tragedy:-

- **Fukushima Daiichi Nuclear power plant** meltdown: **2011**. ([Zaporizhzhia nuclear plant](#))
 - **Nuclear power plant:** a type of power plant that uses the process of nuclear fission in order to generate electricity.
 - **Nuclear fission:** atoms are split apart to form smaller atoms, releasing energy.
- **Location:** Japan. ([India – Japan Relations](#))
- **Causes:** a massive **earthquake and tsunami**.
- **Impact:** It released large amounts of radioactive materials into the environment.
- **Causalities:** No deaths were initially attributed to the incident.
 - Although around 18,000 people lost their lives as a **result of the earthquake and tsunami**. ([Early Tsunami Warning System in India](#))

Development after tragedy:-

- Since then, **Japan has been storing the cooling water** for nuclear fuel, and rain and groundwater seeping through the damaged reactor buildings in large tanks on site.
- The **water is treated** using a filtering system called **Advanced Liquid Processing System (ALPS)**.
 - **ALPS**: a filtering system that removes most of the radioactive elements except for **tritium**.
 - **Tritium**: a hydrogen isotope that is difficult to separate.

MUST READ: [India's Nuclear Energy](#)

SOURCE: [THE HINDU](#)

Green credit programme

Context: The Centre recently, notified the **Green Credit programme**.

Background:-

- The Union Ministry of Environment, Forests and Climate Change on October 13, 2023, notified the 'green credit' programme.

About the Green credit programme:-

- **Launched: 2023.**
 - Finance Minister Nirmala Sitharaman had launched "Green Credit Programme"(GCP) in **Union Budget 2023-24.**
- **Ministry: Ministry of Environment, Forests and Climate Change.3234**
- **Objective:** to create a market-based mechanism for undertaking environment-friendly activities such as afforestation programmes, and water conservation by providing additional incentives in the form of green credits.
- It is a **first-of-a-kind market-based instrument** designed to incentivize individuals, industries and local bodies for their voluntary environmental actions across diverse sectors.
- It will be launched at the national level to **incentivize voluntary environmental actions** of various stakeholders.
- It will **encourage private sector industries** by taking actions which are able to converge with activities relevant to generating or buying Green Credits.
 - **Green Credit:** it is an incentive that individuals, farmer-producer organizations (FPOs), industries, and rural and urban local bodies, among other stakeholders, will be able to earn for environment-positive actions.

Governance Structure of GCP:-**GCP Administrator**

- **The Indian Council of Forestry Research and Education (ICFRE)** will be the administrator of GCP.
 - **ICFRE:** it is an autonomous organization or governmental agency under the MoEFCC.
 - Its aim is to generate, advance and disseminate scientific knowledge and technologies for ecological security, improved productivity, livelihood enhancement and sustainable use of forest resources through forestry research and education.
- It will **manage, monitor and operate** the entire programme.

Steering committee

- It will be set up to **approve procedures for institutionalizing the GCP, rules and regulations**
- It will recommend it to the central government for issuance of a **Green Credit Certificate**. ([Green Bonds](#))
- It will also determine the **type and amount of fees and charges** for the purpose of meeting the cost and expense towards implementation of GCP.

Working of GCP:-

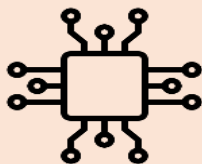
- The GCP administrator will **collect the environmental compensation** and deposit it in a separate dedicated account.
- This fund shall be utilized for activities related to the implementation of GCP.
- For instance, **an individual** who undertakes tree plantation in an area, can earn green credits, which he can sell at the trading platform after validation by the steering committee.

Benefits of GCP:-

- It allows **forests to be traded as a commodity**.
- It allows the Forest Department to **outsource** one of its responsibilities of reforestation to **non-government agencies**.
- It will **encourage plantation by individuals** outside the traditional forest area.
- It will help in **meeting international commitments** such as sustainable development goals and nationally determined contributions.

MUST READ: [Green Urban Oases Programme](#)

SOURCE: [DOWN TO EARTH](#)



SCIENCE & TECHNOLOGY

**Nanoparticles**

Context: Recent studies show that **Nanoparticles** from vehicle fumes in Delhi can cause acute illness.

Key Highlights of the study:-

- The study analyzed nanoparticles (10 to 1090 nanometers in diameter) in Delhi in 2021, over two periods — from April to June, and October to November.
- Nanoparticles in Delhi's air, **a major chunk of which comes from vehicular emissions.**
- It can potentially be **transported from the respiratory system to other parts of the human body**, creating more chronic and acute illnesses.
- These "very small particles" may come from natural sources or from human activities.
- In **urban road environments**, nanoparticles come mainly from the **combustion process in automobiles.**
- In urban environments, ultrafine particles of 1 to 100 nanometers can contribute up to 90% to the total particle number concentration.
- **Meteorology and other factors can also influence** the concentration of these particles.
- With the **rise in relative humidity, coagulation** of these particles results in their concentration becoming high.
- The high concentrations of these pollutants are found during **peak morning and evening hours** due to vehicular emissions. ([AIR POLLUTION](#))

About Nanoparticles:-

- The nanoparticles are small particles which have a range between **1 to 100 nanometers in size**
- They are **naturally occurring substances.**
- These materials can be fashioned as the **by-products of combustion reactions.**
- These are **not visible to the eyes.**
- They can have **different types** of physical and chemical properties.

Properties:-

- There are **three major physical properties** of nanoparticles, and all are interrelated:-
- They are **highly mobile** in the free state.
- They have **enormous specific surface areas.**
- They may exhibit what are known as **quantum effects.**

Applications:-

- Nanoparticles are used in **aerospace.**
- Nanoparticles are also used in different types of **environmental preservation processes.**
- They are widely used in **cosmetic industries.**
- The use of nanoparticles in **sports industries** is quite important.
- The use of nanomaterials among **other industries** for the manufacturing of the towels and mats used by sportspeople.
- Developers use **Nano-titanium dioxide** to promote the self-cleaning process of the surfaces of plastic garden chairs.
- **Photovoltaics (PV)** are the types of nanoparticles that can control the size, shape, and material of the nanoparticle.
 - These nanoparticles allow engineers to design different types of solar thermal products.

MUST READ: [Cordy gold nanoparticles](#)

SOURCE: [THE INDIAN EXPRESS](#)

Abort Mission 1(TV-D1)

Context: The Indian Space Research Organisation (ISRO) has started preparing for the flight test Vehicle **Abort Mission 1(TV-D1)** for the Gaganyaan mission.

Background:-

- The Space Agency has said that the unmanned flight tests for the Gaganyaan mission will commence soon.
- ISRO will also test the efficacy of the Crew Escape System which is a crucial part of the Gaganyaan mission, resulting in unmanned and manned missions to outer space by 2024.

About Abort Mission 1(TV-D1):-

- **Conducted by:** The Indian Space Research Organization (ISRO).
- **Objective:** to ensure crew safety during the [Gaganyaan mission](#).
- The abort missions are meant to **test the systems that can help the crew escape** from the spacecraft mid-flight **in case of a failure**.
- ISRO has developed test vehicles for the abort missions.
- These can send the systems up to a certain height, **simulate failure**, and then check the escape system.
- **Test Vehicle (TV-D1)** is the **first development flight**.
- The Test Vehicle is a **single-stage liquid rocket**.
- **Payloads:** consist of the **Crew Module (CM)** and **Crew Escape Systems (CES)** with their **fast-acting solid motors**, along with **CM fairing (CMF)** and **Interface Adapters**.
- Escape system is designed with **five “quick-acting” solid fuel motors** with a high burn rate propulsion system, and fins to maintain stability.
- The **Crew Escape Systems (CES)** will separate from the crew module by firing explosive nuts.

Mission plan:-

- This flight will **simulate the abort condition** during the ascent trajectory corresponding to a Mach number of 1.2 encountered in the Gaganyaan mission.
- **CES with CM will be separated** from the Test Vehicle at an altitude of about 17 km.
- Subsequently, the **abort sequence will be executed autonomously** commencing with the separation of CES and deployment of the series of parachutes.
- Finally, culminating in the **safe touchdown of CM in the sea**, about 10 km from the coast of Sriharikota.

Significance:-

- The success of this test flight **will set the stage for the remaining qualification tests** and unmanned missions, leading to the first Gaganyaan mission with Indian Astronauts.
- It will help ISRO focus on perfecting the system that will launch and land Indians on missions to space and **protect the astronauts if the mission fails**.

MUST READ: [Space Economy of India](#)

SOURCE: [AIR](#)

Stratospheric aerosol injection (SAI)

Context: A study shows that geoengineering intervention, **stratospheric aerosol injection (SAI)** may affect global food production.

Background:-

- Implementing a controversial climate intervention **Stratospheric aerosol injection (SAI)** could likely **create inequities in food production, benefitting some and harming others**, a new study published in the journal Nature Food warned.

About Stratospheric aerosol injection (SAI):-

- Geoengineering literally means "**Earth-engineering**".
- Geoengineering is an umbrella term for various experimental technologies to make compensatory changes to Earth's climate to **reverse the damage people have already done.** [\(Mitigating Climate Change\)](#)
- It refers to **deliberate, large-scale intervention** carried out in the Earth's natural systems to reverse the impacts of [climate change](#).
- SAI is the **main type of solar radiation management (SRM)**.

Mechanism of SAI:-

- SAI **mimics volcanic eruptions.**
- It **injects sulfur dioxide into the stratosphere.**
 - **Stratosphere:** the layer of atmosphere extending from about 10 kilometers to 50 km in altitude.
- In the stratosphere, it oxidizes to **form sulphuric acid**, which then forms **reflective aerosol particles.**
- These gases **reflect some of the sun's heat**, mimicking an effect that happens naturally in a strong volcanic eruption.

MUST READ: [Climate Change and Global Health](#)

SOURCE: [DOWN TO EARTH](#)

(CAR) T-cell therapy

Context: India's first chimeric antigen receptor **(CAR) T-cell therapy** was approved recently.

Background:-

- For treating relapsed-refractory B-cell lymphoma and leukaemia, Mumbai-based Immunoadoptive Cell Therapy Private Limited (ImmunoACT) announced the approval of India's first chimeric antigen receptor (CAR) T-cell therapy by the Central Drugs Standard Control Organization (CDSCO) on October 13, 2023.
- Priorly, CAR-T cell therapy cost around \$400,000 or over Rs 3.3 crore and patients could avail of it in the United States.
- With this development, the therapy will be accessible at 20 Indian government and private hospitals treating cancer across major cities at around Rs 30-35 lakh per patient.

About (CAR) T-cell therapy:-

- Chimeric antigen receptor (CAR) T-cell therapy is a kind of cancer treatment that **uses cells from your own immune system.**
- It treats certain cancers by **turning your T-lymphocytes or T-cells into more efficient cancer-fighting machines.**
- CAR T-cell therapy is proving to be a very **effective way of treating certain blood cancers.**

Treatment Mechanism:-

- The blood is first drawn from the patient.
- Then, immune cells called **T-cells are genetically modified** in a laboratory.
- These modified T-cells are **injected back into the patient** to enable the cells to locate and destroy cancer cells more effectively.

Applications:-

- The U.S. Food and Drug Administration (FDA) has approved several CAR T-cell therapies for people who have **certain blood cancers** that don't respond to chemotherapy and other treatments. [\(National Cancer Registry Programme Report 2020\)](#)

- This therapy is also used to treat people who have **blood cancer that returns after other successful treatments.**

Challenges:-

- **Cytokine release syndrome (CRS):** This happens when CAR T-cells begin attacking cancer and trigger an **immune response in your body.**
- **Brain and nervous system problems.**
- **Serious infections.**

MUST READ: [ICMR's 'Clinicopathological Profile of Cancers in India' Report](#)

SOURCE: [DOWN TO EARTH](#)

Rasmussen's encephalitis

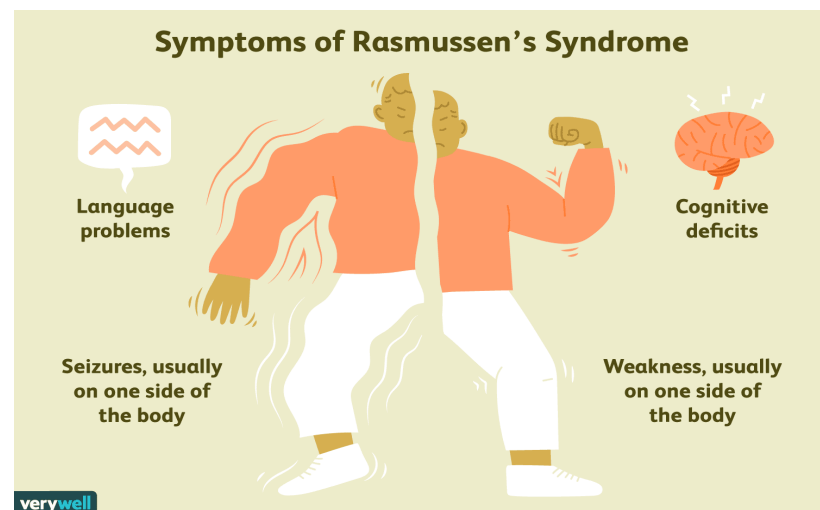
Context: Recently, doctors Shut down Half of a girl's Brain to halt the rare disease **Rasmussen's encephalitis.**

Background:-

- To help a sick girl named Brianna Bodley, doctors at Loma Linda University Health in California turned off one half of her brain.
- This was because she had a condition called Rasmussen's encephalitis, which causes swelling in the brain.

About Rasmussen's encephalitis:-

IMAGE SOURCE: [About.com Health](#)



- Rasmussen's encephalitis is an **extremely rare, chronic inflammatory neurological disease.**
- The patient usually experiences frequent episodes of uncontrolled electrical disturbances in the brain that cause **epileptic seizures (epilepsy) and progressive cerebral destruction.** ([Rare Diseases](#))
- With time, further symptoms may include:-
 - progressive weakness of one side of

the body (hemiparesis),

- language problems (if on the left side of the brain) and
- intellectual disabilities.

- **Cause:** The exact cause of this disorder is **not known.**
- The two leading ideas are that brain inflammation might be a reaction of a **foreign antigen (infection) or an autoimmune disease** limited to one side of the brain resulting in brain damage.
- **Age Group:-**
 - It occurs mostly, but not always, in children between the ages of **two and ten years.**
 - In many patients the course of the disease is most severe during the first **8 to 12 months.**
 - After the peak inflammatory response is reached, the progression of this disorder appears to slow or stop, and the patient is left with **permanent neurological deficits.**

- It often results in permanent disabilities such as **epilepsy, paralysis, and cognitive problems**.
- The severity varies among individuals. ([Disease Surveillance System](#))

Treatment:-

- **Antiseizure Medications:** These medications are often used to manage seizures, although they might not completely eliminate them.
- **Immunotherapy:** Early use of immunotherapy may help control seizures or prevent further immune-related brain damage.
- **Brain Surgery (Hemispherectomy):** It involves the removal or disconnection of half of the patient's brain from the rest of the brain.

MUST READ: [Rare disease 'GNB1 Encephalopathy](#)

SOURCE: [CNN](#)

BlueWalker 3 satellite

Context: Recent observations taken within weeks of its launch showed the **BlueWalker 3 satellite** was among the brightest objects in the sky.

Background:-

- According to a new study, is as bright as the brightest stars in the 89 constellations of Canis Minor and Eridanus.

About BlueWalker 3 satellite:-

- **Launched: 9:20 p.m. ET**
- **Launch date: 10 September 2022.**
- BlueWalker 3 is a **prototype satellite**. ([NASA and ISRO collaborate on satellite NISAR](#))
- It is part of a satellite constellation planned by its owner **AST SpaceMobile (a U.S.-based company)**.
- It is designed to operate directly with standard, **unmodified mobile devices**.
- It has a **64-square-meter** (693-square-foot) antenna system.
- It uses its large phased-array antenna **to generate power from space and deliver cellular broadband** directly to mobile phones.
- This is the **largest commercial antenna system** ever deployed into low Earth orbit.
- It is **the first** of what is expected to be more than a hundred similar or even larger satellites.
- It is a predecessor to planned commercial satellites called **BlueBirds**.

Applications:-

- The spacecraft was built to **establish connectivity directly with cell phones** via 3GPP-standard frequencies.
- It is intended to **deliver mobile or broadband services** anywhere in the world.

Challenges:-

- Bluewalker 3's large size and bright reflective surfaces could **interfere with astronomical observations**.
 - Its light could be mistaken for stars or interfere with the ability to detect dimmer objects.
- It actively transmits at radio frequencies that are close to bands reserved for radio astronomy, which may **hamper radio telescope observations**.

MUST READ: [India's first private rocket – Vikram-S](#)

SOURCE: [DOWN TO EARTH](#)

Attention Deficit Hyperactivity Disorder (ADHD)

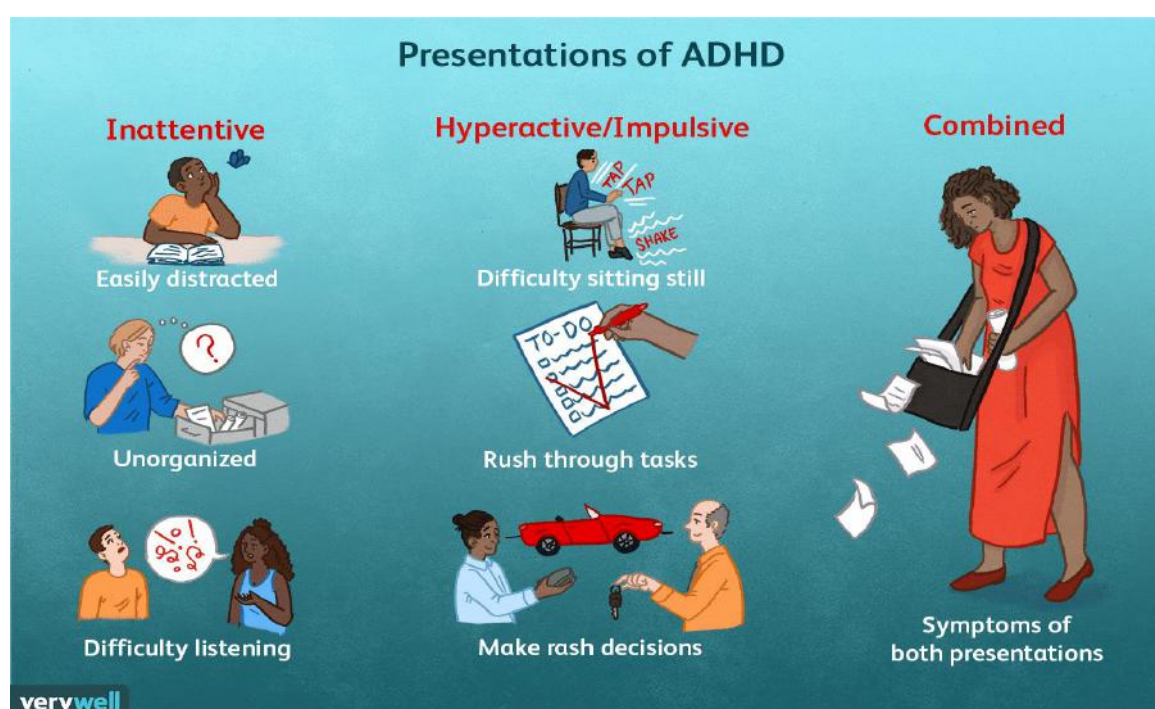
Context: A recently conducted massive review found that **Attention Deficit Hyperactivity Disorder (ADHD)** is more prevalent in adults than previously realized

Background:-

- A new estimate of the global prevalence of adult ADHD suggests the condition could be more common than previously realized.

About Attention Deficit Hyperactivity Disorder(ADHD):-

IMAGE SOURCE: [counselling](#)



- Attention deficit hyperactivity disorder, or ADHD, is a mental health condition that includes challenges relating to **inattention, hyperactivity, and impulsivity to the point that it interferes with everyday life.**
- ADHD is **one of the most common childhood neurodevelopmental disorders.**
 - **Neurodevelopmental disorders:** a condition that has its onset in the developmental period and impacts how the brain works.
- It affects around **5% of school-aged children.**
- Adults also can be diagnosed with ADHD. ([Mental Healthcare: Issues & solutions](#))
- Around **two-thirds of children with ADHD continue** to experience symptoms as adults.

Signs and Symptoms:-

- Frequent forgetfulness
- Daydreaming and the appearance of not listening
- Trouble staying on task
- Disorganization
- Avoidance of tasks that require focus
- Trouble sitting still, fidgeting, and squirming

- Excessive talking
- Risky behaviour
- Carelessness, or lack of attention to details
- A pattern of making mistakes
- Trouble getting along with other kids
- Difficulty taking turns

Causes ADHD:-

- The causes of ADHD are not well understood, although there is research that suggests that **genetics likely play an important role.**

Treatment:-

- ADHD is typically treated with behavioral therapy, medication, or both. ([Adderall drug](#))

MUST READ: [Mental Health](#)

SOURCE: [SCIENCE ALERT](#)

Exlusome

Context: Recently, Cell biologists identified a new organelle called exlusome.

Background:-

- Researchers at ETH Zurich recently identified a previously unknown compartment in mammalian cells. They have named it the exlusome.

About Exlusome:-

- It is present in mammalian cells **made of rings of DNA.**
- It is made up of DNA rings known as **plasmids.**
- It lies in **the cell plasma.**
- It is exceptional because eukaryotic cells (cells with nuclei) usually keep most of their DNA in the cell nucleus, where it is organized into chromosomes.
- The exlusome primarily **comprises plasmids**, which are circular DNA molecules.
- These can **replicate independently of chromosomes.**
- They are usually **found in bacteria and other microscopic organisms.**
- Some of these plasmids are derived from external sources, while others are called **telomeric rings** as they originate from the telomeres or capped ends of chromosomes.
- These plasmids **lack the genetic instructions** required for protein synthesis.
- This sets them apart from chromosomal DNA. ([DNA Technology Regulation Bill](#))

MUST READ: [The Human Genome Project](#)

SOURCE: [THE SCIENCE TIMES](#)

Nourseothricin

Context: Recent studies found that the **Nourseothricin** drug shows promising results against superbugs.

Background:-

- The old antibiotic may provide much-needed protection against multi-drug resistant bacterial infections.

About Nourseothricin:-

- Nourseothricin is an **aminoglycoside antibiotic.**
- It is a **mixture of streptothricin D and F (>85%), and streptothricin E and C (<15%).**

- This antibiotic is used for the selection of genetically modified **Gram-positive and Gram-negative bacteria, yeast, filamentous fungi, protozoa, microalgae and plants** during long-term experiments as nourseothricin retains >90% activity after one week under cultivation conditions.
- It is a **natural product** made by **soil bacteria** that are gram-positive.
- It is actually a **mixture of antibiotics**, given individual names such as **streptothricin F (S-F) and streptothricin D (S-D)**.
- While nourseothricin and S-D show **toxic effects on kidney cells** in the lab, Kirby and his colleagues have now established that **isn't the case for S-F**.
- This compound is still **highly effective at killing drug-resistant gram-negative bacteria** but at concentrations that are not toxic.
- It is a **natural product made by a soil fungus**, which contains multiple forms of a complex molecule called streptothricin.
- Its **discovery in the 1940s** generated high hopes for it as a powerful agent against Gram-negative bacteria, which, due to their thick outer protective layer, are especially hard to kill with other antibiotics.
- **But nourseothricin proved toxic to kidneys**, and its development was dropped.
- However, the rise of antibiotic-resistant bacterial infections has spurred the search for new antibiotics, leading Kirby and colleagues to take another look at nourseothricin.
- The resistance genes for nourseothricin are **Sat1, Sat2, Sat3 and Sat4**.

Applications:-

- Nourseothricin is commonly used for **bacterial and plant selection**. ([Medicine Price Control](#))

Advantages:-

- No cross-reactivity with other aminoglycoside antibiotics such as Hygromycin or Geneticin.
- Long-term stable as powder or solution.
- No cross-resistance with therapeutic antibiotics.
- Highly soluble in water.

Disadvantages:-

- It is not used in animal or human experiments because of its **toxicity to kidneys (nephrotoxicity)**.

MUST READ: [Non-steroidal anti-inflammatory](#)

SOURCE: [NEWSMEDICAL-LIFE SCIENCE](#)

Gaganyaan

Context: After an initial hiccup recently, the ISRO's **Gaganyaan** mission safety test flight was successfully tested.

About Gaganyaan:-

- **Planned Launch:2023.**
- **Agency: Indian Space Research Organisation (ISRO).**
- **Country: INDIA.**
- **Rocket: GSLV Mk-III.**
 - **GSLV Mk-III:** it is also called the LVM-3 (Launch Vehicle Mark-3,) the three-stage heavy lift launch vehicle.
- [Gaganyaan](#) is **India's 1st Human spaceflight programme** to be launched by 2023.
- It envisages a demonstration of human spaceflight capability by launching a crew of 3 members to an orbit of 400 km for a 3-day mission and bringing them back safely to earth, by landing in Indian sea waters.

Timeline so far:-

- It includes **two unmanned flights which were to be launched in December 2020 and July 2021** and one human space flight to be launched in **December 2021**.
- However, due to COVID-19 Pandemic it got delayed.

The Mission specifications:-

- The Gaganyaan system module, **called the Orbital Module** will have **three Indian astronauts**.
- It will include a **woman**.
- It will **circle Earth at a low-earth orbit** at an altitude of 300-400 km from Earth for **5-7 days**.
- **The payload will consist of:-**
 - **Crew module** – spacecraft carrying human beings.
 - **Service module** – powered by two liquid propellant engines.
 - The crew members will be selected by the IAF and ISR.
 - Crew will perform micro-gravity and other scientific experiments for a week.
- **Training in Russia:**
 - In June 2019, the Human Space Flight Centre of the **ISRO and the Russian government-owned Glavkosmos** signed a contract for the training, which includes Russian support in the selection of candidates, their medical examination, and space training.

Significance:-

- It will make India the **4th country** to send a manned mission after Russia, the USA and China.
- Employment generation.
- Technological advancement.

MUST READ: [India – USA space cooperation](#)

SOURCE: [THE INDIAN EXPRESS](#)

Laser Interferometer Gravitational-Wave Observatory (LIGO)

Context: Recently, the **Laser Interferometer Gravitational-Wave Observatory (LIGO)** has surpassed the Quantum Limit.

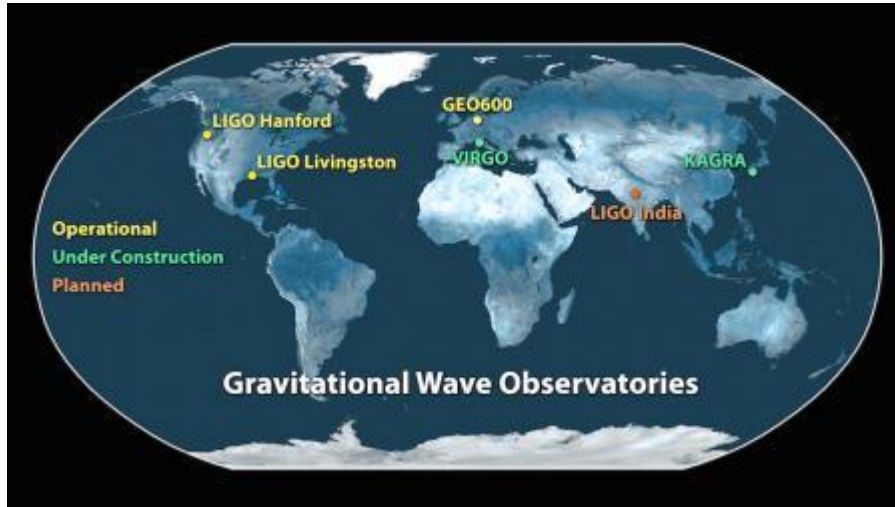
About Laser Interferometer Gravitational-Wave Observatory (LIGO):-

IMAGE SOURCE: [LIGO-India gets the green light | Astronomy.com](#)

- LIGO is an **international network of laboratories**.
- It aims to **detect the ripples in spacetime** produced by the movement of large celestial objects.
- It comprises **two enormous laser interferometers** located thousands of kilometres apart, each having two arms which are 4 km long.
- It **exploits the physical properties of light and of space** itself to detect and **understand the origins of Gravitational Waves (GW)**.
- **Gravitational Waves:** These are invisible ripples in space that form when:
 - A star explodes in a supernova.
 - Two big stars orbit each other.
 - Two black holes merge.
 - Neutron star-Black hole (NS-BH) merges.
- They **travel at the speed of light** (1,86,000 miles per second) and squeeze and stretch anything in their path.
- These were proposed by **Albert Einstein** in his **General Theory of Relativity**.
- However, the first gravitational wave was actually detected by **LIGO only in 2015**.

LIGO detectors:-

- Four comparable detectors will be operating simultaneously around the globe to localize a source of gravitational waves anywhere in the sky. ([International Space Station \(ISS\)](#))



- The **twin LIGO initially built were, in Louisiana (first) and Washington (second)** in the U.S.

- LIGO-India will be the **third of its kind in the world.** ([Space Economy of India](#))

- The fourth detector will be in **Kagra, Japan.**

- **LIGO:** an international network of laboratories that detect gravitational waves.

- The LIGO in the US first

detected gravitational waves in 2015, which led to a **Nobel Prize in Physics** in 2017.

- Its detector components are completely **isolated and sheltered from the outside world.**
- Unlike optical or radio telescopes, it does not see electromagnetic radiation because **gravitational waves are not part of the electromagnetic spectrum.**
- It **doesn't need to collect light from stars.**
- it doesn't need to be round or dish-shaped like optical telescope mirrors or radio telescope dishes, both of which focus EM radiation to produce images.

MUST READ: [SpaceTech Innovation Network \(SpIN\)](#)

SOURCE: [SCIENCE ALERT](#)

Hunter's Moon Lunar Eclipse

Context: Hunter's Moon Lunar Eclipse is predicted to be seen on October 28th, 2023.

Background:-

- The "Hunter's Moon" will officially be 100% illuminated at 3:35 p.m. EST on Saturday, October 28, 2023.

About Hunter's Moon Lunar Eclipse:-

- The Hunter's Moon is one of the many names given to the **full moons** throughout the year.
- Each of these names have its own **unique cultural and historical significance.**

Historical Significance:-

- Rooted in Native American, Colonial American, and other traditional North American cultures, the names of these moons were used to track the **changing seasons** and were adopted by colonial settlers.
- The Hunter's Moon **follows the Harvest Moon**, which is the full moon closest to the autumnal equinox.

Naming:-

- Historically, **the Harvest Moon allowed farmers to work late into harvesting their crops by the moon's light.**
- Once the harvest was completed, the Hunter's Moon would rise signaling a time when game would be fattened and hunted to store for the winter.
- This **moon was a beacon for hunters** to begin stocking up for the colder months ahead.

Features:-

- The Hunter's Moon can sometimes appear **red or orange in color**, due to the way that sunlight is scattered by the Earth's atmosphere.
- This is especially common when the moon is low in the sky, such as **during sunrise and sunset**.
- This year's Hunter's Moon" will **look both more colorful and larger** than it will at any other time of night.
- It will only for about **15 minutes**.
- It will also be **more impactful** because it's being viewed in twilight, not darkness.
- **Europe and Africa** will be the best placed to see watch the entire event, but it's a very slight partial lunar eclipse.
- At the peak of the event about **6% of the full moon** will be inside Earth's dark central shadow .
- It may look like a **small bite has been taken from it**.
- However, as it drifts through Earth's lighter, outer penumbral shadow it will mostly just **seem less bright than usual**.

About Lunar Eclipse:-

- An eclipse happens **when a planet or a moon gets in the way of the sun's light**. ([Eclipses](#))
- A lunar eclipse occurs when the **Sun, Earth, and Moon align so that the Moon passes into Earth's shadow**.
- In the Lunar Eclipse, **the Earth arrives in between the sun and the moon**.
 - In this way, **the shadow of the earth falls on the moon**.
- The lunar eclipse **can only happen during the Full Moon**. But, the orbits of the moon and earth are different.
- That's why the lunar eclipse **happens only up to 3-4 times a year**.
- There are **three types of lunar eclipses: Total lunar eclipses, partial lunar eclipses, and penumbral lunar eclipses**.
- **Total lunar eclipse:** entire Moon falls within the darkest part of Earth's shadow, called the umbra.
 - When the Moon is within the umbra, it will turn a **reddish hue**.
 - Lunar eclipses are sometimes called "**Blood Moons**" because of this phenomenon.
- **Partial lunar eclipse:** An imperfect alignment of Sun, Earth and Moon results in the Moon passing through only part of Earth's umbra.
 - The shadow grows and then recedes without ever entirely covering the Moon.
- **Penumbral eclipse:** The Moon travels through Earth's penumbra, or the faint outer part of its shadow.
 - The Moon dims so slightly that it can be difficult to notice

MUST READ: [Supermoon](#)**SOURCE:** [SCIENCE ALERT](#)**David's Sling**

Context: Recently, Israel recently confirmed using its **David's Sling** air-defence system to intercept a Hamas rocket.

About David's Sling:-

- David's Sling is a highly sophisticated and **state-of-the-art anti-missile defence system**.
- It is also sometimes called **Magic Wand**.

- It was developed jointly by **Rafael Advanced Defence Systems**, an Israeli defence contractor, and Raytheon, an American defence contractor.
- The system is designed to **intercept various types of missiles** that may be fired towards Israel by hostile countries.
- At the core of David's Sling lies the **"Stunner" or "SkyCeptor,"** an advanced multi-mission interceptor.
- This cutting-edge technology is **capable of effectively countering a wide array of threats.**
- It makes it lethal, flexible, and affordable for dealing with mass raids of enemy missiles and rockets.
- David's Sling achieved **operational status in April 2017.**
- It plays a critical role in Israel's **theatre missile defence system.**
- It complements other systems like **Arrow 2, Arrow 3, Iron Dome, and Iron Beam.**
- It is aimed to fill an operational gap between Iron Dome, which shoots down short-range rockets, and Arrow, which shoots down long-range ballistic missiles, both are already in use.

MUST READ: [India, Israel and Palestine](#)

SOURCE: [THE NEW YORK TIMES](#)

NASA's Roman Space Telescope

Context: Recent reports suggest that NASA is preparing to embark on a remarkable journey into the depths of our Milky Way Galaxy using the **Nancy Grace Roman Space Telescope.**

Background:-

- It will scan the vast expanse of space, searching for subtle signals and telltale flickers that could unlock secrets about the cosmos .

About NASA's Roman Space Telescope:-

- **Planned launch: 2027.**
- **Agency: NASA.**
- **Country: USA.**
- The Roman Space Telescope is a NASA observatory designed to **unravel the secrets of dark energy and dark matter, search for and image exoplanets, and explore many topics in infrared astrophysics.**
- It has a **2.4m telescope**, the same size as Hubble's, but with a view 100 times greater than Hubble's.
- It was the **top-ranked large space mission** in the **2010 Decadal Survey of Astronomy and Astrophysics.**
- It is slated to launch in the mid-2020s.
- It has a **field of view that is 100 times greater than the Hubble** infrared instrument, capturing more of the sky with less observing time.
- It will have a primary **mission lifetime of 5 years**, with a potential 5-year extended mission.

[\(Giant Metrewave Radio Telescope\)](#)

MUST READ: [SARAS radio telescope](#)

SOURCE: [HINDUSTAN TIMES](#)

"Calixcoca" Vaccine

Context: Recently, Brazil scientists developed a new 'vaccine' **Calixcoca" Vaccine**, for cocaine addiction.

About "Calixcoca" Vaccine:-

- Calixcoca', is a therapeutic vaccine that promises to **prevent the addictive effects of cocaine or crack.** ([Drug Addiction](#))
- It is offering new hope to millions battling cocaine addiction worldwide. ([mRNA Vaccine](#))

Working:-

- Calixcoca functions by **inducing an immune response** that generates antibodies capable of binding to cocaine molecules in the bloodstream.
- This **binding process results in the enlargement of cocaine molecules**, rendering them too large to pass into the brain's "reward centre" or mesolimbic system.
- This **area of the brain is typically stimulated by cocaine** to release dopamine, the pleasure-inducing neurotransmitter.
- Consequently, individuals who receive the vaccine **will not experience the desired euphoric effects of cocaine**, potentially assisting them in breaking the cycle of addiction.
- Furthermore, it **reduces the risk of overdose** as cocaine molecules are retained in the blood, bound to the antibodies, and thus, unable to act on the heart or arteries.
- Following encouraging results in animal trials, Calixcoca is poised to enter the next phase of development, which **involves human trials**.
- Calixcoca is designed **for recovering addicts who have already discontinued cocaine use** and are seeking assistance in maintaining their sobriety.

Significance:-

- Despite the alarming rise in cocaine and crack addiction, there are no approved medications specifically for treating this problem.
- The development of the Calixcoca vaccine, therefore, is a beacon of hope for an effective medical intervention.

MUST READ: ['ZyCov-D' vaccine](#)

SOURCE: [BANGALORE MIRROR](#)



HISTORY AND ART & CULTURE



Matangini Hazra

Context: Matangini Hazra was remembered on the 81st anniversary of her martyrdom.

About Matangini Hazra:-

- **Birth: 1869.**
- **Birth place Tamluk, West Bengal.**
- **Death:1942.**
- Matangini Hazra was 73 when she fell to British bullets, leading a protest march in **1942 in Tamluk, Bengal.**
- Her death made her a martyr for many, inciting revolutionaries to establish their own **parallel government in Medinipur**, which functioned till 1944.

Early Life:-

- She was married at a young age and became widowed at 18.
- After her husband's death, she dedicated herself to social causes.

Ideology:-

- She supported Mahatma Gandhi's ideals. (**Mahatma Gandhi**)
- People fondly called her **Gandhi Buri** (Old Lady Gandhi) for her dedication to Gandhian principles. (**India and Mahatma Gandhi**)

Political Participation:-

- She became an **active member of the Indian National Congress** and took to spinning her own Khadi.
- She participated in the **Civil Disobedience Movement, the Salt March, and the [Quit India Movement](#).**
- **1933:** When Sir John Anderson, Governor of Bengal visited Tamluk to address a public gathering, Matangini craftily managed to avoid the security and reached the dais where she waved a black flag.
 - She was awarded **six months of rigorous imprisonment** for her bravado.
- **1942:** During the Quit India Movement in 1942, at the age of 73, she led a large procession of around 6,000 protesters, advocating for the takeover of the Tamluk police station.
 - In the ensuing clash with British authorities, she was **shot and killed, becoming a martyr** for the cause of Indian independence.

MUST READ: [India's Women Unsung Heroes of Freedom Struggle](#)

SOURCE: [THE INDIAN EXPRESS](#)

Naganathaswamy Temple

Context: The Tamil Nadu Department of Archaeology is embarking on a restoration project for the ancient **Naganathaswamy Temple**.

Background:-

- The Tamil Nadu Department of Archaeology is set to take up restoration of the 1,000-year-old Naganathaswamy Temple at Manambadi in Thanjavur district in what would be a revival of the Chola-era temple that was dismantled in a botched renovation exercise some years ago.

About Naganathaswamy Temple:-

- **Location: Manambadi, Thanjavur district, Tamil Nadu.**

- **Constructed by: Rajendra Chola I**
- It was constructed between **1012 and 1044 CE**.
- It is renowned for its remarkable **stone sculptures and historical inscriptions**. ([Hoysala Temples](#))
- The temple features an ekatala vimana and a mukha mandapa, both divided into **three bays, adorned with sculptures of deities and intricate makara thanas** (ceremonial arches).
- The walls of both structures are divided into **three bays**.
- The central bays of the vimana have niches to accommodate **Dakshinamurthi** in the south, **Lingodhbava** in the west, and **Brahma** in the north.
- The **sculptures of Bikshatana, Adavallan, and Ganapathi** decorate the south, whereas Gangadarara, Durga, and Ammaiappar are in the north.
- All the niches have **well-carved and distinctive makara thoranas** (ceremonial arches) with relief sculptures in the centre.
- The temple is known for its **important inscriptions** belonging to the periods of **Rajendra Chola I and Kulothunga I (regnal years 1070-1120 CE)**.
- **Nine interesting and informative inscriptions** have been recorded from this temple.
- The earliest among them belongs to the fourth regnal year of **Rajendra Chola I**.
- Beyond its cultural significance, the temple plays a vital role in **the local economy**.
- It is a hub for **trade and commerce**.
- It was declared as an **ancient monument in September 2022**.
- The Arulmigu Naganathaswamy temple at Manambadi village, Tiruvidai Maruthur taluk, has been declared a **protected monument** under the Tamil Nadu Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1966.

MUST READ: [Shore temple](#)

SOURCE: [THE HINDU](#)

Bojjannakonda

Context: Recently, Andhra Pradesh's **Bojjannakonda** got a major facelift to draw more tourists.

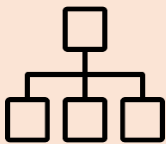
About Bojjannakonda:-

- **Location: Andhra Pradesh.**
- [Bojjannakonda](#) is a historic Buddhist site in **Andhra Pradesh near Visakhapatnam**.
- It is renowned for its **votive stupas, caves, brick structures, early historic pottery, and Satavahana coins**.
- It Dates back to the **3rd century BC**.
- **Buddhist monks** used to practice on the hill about 2,000 years ago.
- It was originally known as '**Buddhuni konda**' (hill of the Buddha), but it came to be known as 'Bojjannakonda' in the course of time.
- Visakhapatnam hosts **other Buddhist sites like** Thotlakonda, Appikonda, and Bavikonda. Bojjannakonda and Lingalametta are ancient Buddhist monasteries from the 3rd century BC.
- These are **ancient Buddhist monasteries**.
- They feature various **rock-carved stupas, Buddha sculptures, and rock-cut monolithic stupas**.
- These sites **reflect the evolution of Buddhism** through its three phases: Theravada, Mahayana, and Vajrayana.
 - Theravada: Lord Buddha was considered a teacher.
 - Mahayana: Buddhism was more devotional.

- Vajrayana: Buddhist tradition was more practiced as Tantra and in esoteric form. ([Neo-Buddhism](#))
- The **main stupa at Bojjannakonda** is a rock-carved structure covered with bricks and adorned with Buddha sculptures.
- To the west of Bojjannakonda, another hillock, **Lingalakonda or Lingametta**, is present.
- It boasts rows of **rock-cut monolithic stupas**.
- The Buddhist temple at **Barabodur in Java** has been constructed on the lines of the structures on Lingametta, according to Buddhist monks.
- It is also known as 'Sankaram', perhaps, a corruption of the **Buddhist 'Sangraha'**.

MUST READ: [The Buddhist Circuit](#)

SOURCE: [THE HINDU](#)



GOVT. INITIATIVES, SCHEMES AND POLICIES

**National Turmeric Board**

Context: Prime Minister Narendra Modi recently, announced the setting up of a National Turmeric Board for Telangana.

About National Turmeric Board:-

- **Location:** Telangana.
- **Set up:** 2023.
- **Objective:** to harness the potential of our turmeric farmers and give them the support they rightly deserve.
- The National Turmeric Board will focus on **value addition to the supply chain**.
- The board will extend **help to all turmeric farmers** on all aspects of Turmeric crops.
- It would serve various purposes, including **enhancing value addition in the turmeric supply chain**.
- It will help in addressing **infrastructure-related** needs for farmers.
- It will help the Telangana farmers in **having a value chain right** from production to export and research in addition to infrastructure.
- It will **boost the country's position** as a key player in the global turmeric market.

Significance:-

- These infrastructure and developmental projects will **increase employment opportunities**.
- It improves the **lives of people**.

Turmeric:-

- Turmeric is a **flowering plant**. ([Lakadong Turmeric](#))
- It is used as a condiment, dye, drug, and cosmetic in addition to its use in religious ceremonies.
- Its color comes mainly from **curcumin**, a bright yellow phenolic compound.
- It requires temperatures between 20 and 30 °C (68 and 86 °F).

Significance of Turmeric for India:-

- India holds a prominent position as a major **producer, consumer, and exporter**.
- Currently, India contributes to approximately **80 percent of the world's turmeric production**, yielding nearly 1.1 million tonnes of spice annually.
- The top five turmeric-producing states of India in 2020-21 are **Telangana, Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh**.
- Awareness of the health benefits of turmeric had grown during the COVID-19 pandemic, leading to **increased demand for the spice globally**.
- Turmeric **exports have been on the rise**, with shipments totaling around 1.5 lakh tonnes, particularly since the onset of the pandemic.

Health Benefits of Turmeric:-

- Depression
- Type 2 Diabetes
- Viral Infections
- Premenstrual Syndrome
- High Cholesterol

MUST READ: [Soil-less agriculture](#)

SOURCE: [AIR](#)

Intelligent Grievance Monitoring System (IGMS) 2.0

Context: The Intelligent Grievance Monitoring System (IGMS) 2.0 was launched recently.

About Intelligent Grievance Monitoring System (IGMS) 2.0:-

- **Developed by IIT Kanpur.**
- **Ministry: Ministry of Personnel, Public Grievances and Pensions.**
- **Objectives:** Provide instant tabular analysis of Grievances Filed and disposed of. Offer State-wise and district-wise Grievances Filed data. Offer Ministry-wise data. Enhance grievance redressal process with AI capabilities.
- IGMS 2.0, is an **Intelligent Grievance Monitoring System. ([Grievance Appellate Committee \(GAC\) portal](#))**
- It is for **upgrading DARPG Information Systems (CPGRAMS)** with Artificial Intelligence capabilities.
- **CPGRAMS, or Centralised Public Grievance Redress and Monitoring System**, serves as an online platform for citizens to lodge grievances with government authorities 24/7, streamlining the process for efficient service delivery.
- The Dashboard provides instant tabular **analysis of Grievances Filed and disposed of, State-wise and district-wise Grievances Filed, and ministry-wise data.**
- It also helps the officials **identify the root cause of the grievance.**
- This portal falls under the **Department of Administrative Reforms and Public Grievances (DARPG).**
- It offers **real-time analysis** of grievances filed and resolved, categorizing data by state, district, and ministry.
- The system **leverages artificial intelligence (AI) to identify the root causes of grievances** and facilitates drafting letters for scheme or ministry selection, expediting grievance resolution.

MUST READ: [Grievance Appellate Committees \(GACs\)](#)

SOURCE: [PIB](#)

Swachhata Hi Seva Campaign

Context: Recently, Indian Renewable Energy Development Agency Ltd. (IREDA) began the 'Ek Taarikh, Ek Ghanta, Ek Saath' Cleanliness Initiative under **Swachhata Hi Seva Campaign.**

Background:-

- As part of the ongoing 'Swachhata Hi Seva' Campaign 3.0, Indian Renewable Energy Development Agency Ltd. (IREDA) joined the nation in organizing 'Ek Taarikh, Ek Ghanta, Ek Saath' cleanliness drive, at its office premises in Bhikaiji Cama Place, Delhi and adjoining areas recently.
- **Ek Tareekh Ek Ghanta Ek Saath:-**
- It is an initiative that is a **massive voluntary effort** for cleanliness in India, endorsed by Prime Minister Narendra Modi.
- The initiative encourages citizens **to engage in one hour of "shramdaan" (voluntary labour) for cleanliness at 10 a.m. on October 1st as a tribute to Mahatma Gandhi.**

About Swachhata Hi Seva Campaign:-

- **Ministry: Ministry of Housing and Urban Affairs (MoHUA).**
- **Duration:** The Swachhata Hi Seva (SHS) campaign is being celebrated from **15th September to 2nd October** this year (2023).
- It is being celebrated as a prelude for the **Swachh Bharat Diwas (2nd October)** with nationwide participation.
- **Implementation:** It is under the joint aegis of **DDWS & MoHUA.**
- **Theme of SHS-2023: 'Garbage Free India'.**
- **Focus:** visual cleanliness and welfare of SafaiMitras.

- The focus of these **swachhata drives** would be on high footfall public places like bus stands, railway stations, cantonment boards, beaches, tourist places, zoos, national parks & sanctuaries, historical monuments, heritage sites, river fronts, ghats, drains and nallahs etc. in both rural & urban areas of State/ UT.

Objectives:-

- For undertaking shramdaan activities aiming to generate Jan andolan through community participation.
- To provide impetus for the implementation of SBM.
- To disseminate the importance of a sampoorna swachh village.
- To reinforce the concept of Sanitation as everyone's business.

Activities:-

Activities proposed for States / Districts / Blocks to organize SHS from 15th September 2023 to 2nd October 2023 are as follows:-

- **Removal of garbage** from all important places.
- **Repair**, painting, cleaning, and branding of all sanitation assets like litter bins, public toilets, dhalaos, waste transport vehicles, MRFs, etc. in the area.
- **Drives to clean riverbanks** and remove of waste (including plastic) from water bodies, especially in Ganga Grams and Ganga Towns.
- **Cleaning** of zoos, national parks, wildlife sanctuaries, etc. under MoEFCC along with regulation of plastic materials in protected areas to prevent littering.
- **Cleanliness drives** of tourist spots, ASI protected monuments along with IEC initiatives to discourage usage of single-use plastic items, saturating dry and wet waste bins in line with the Hara Geela Sookha Neela campaign, etc.

MUST READ: [Swachh Bharat 2.0](#)

SOURCE: [PIB](#)

PM SVANidhi scheme

Context: Prime Minister Narendra Modi has recently lauded the **PM SVANidhi scheme** which has crossed the milestone of 50 lakh beneficiaries.

About PM SVANidhi scheme:-

IMAGE SOURCE: transformingindia.mygov.in

- **Launched in 2020.** (UPSC CSE: PM SVANidhi scheme)
- **Ministry: Ministry of Housing & Urban Affairs.**
- **Implementation agency: Small Industries Development Bank of India (SIDBI).**
- **Objective:** Providing affordable Working Capital loans to street vendors to resume their livelihoods that have been adversely affected due to the COVID-19 lockdown.
- The scheme intends to **facilitate collateral-free working capital loans of up to INR10,000/- of one-year tenure**, to approximately 50 lakh street vendors.
- It is a **Central Sector Scheme**.
 - **Central sector schemes:** schemes with 100% funding by the Central government and implemented by the Central Government machinery.
- **Duration of the scheme:** The duration of the scheme initially was until March 2022. It has been extended till December 2024.

Salient Features:-

- **Loan limit:** Vendors can avail a **working capital loan of up to Rs. 10,000.** ([PM SVANidhi scheme](#))

- This loan is **repayable in monthly installments** for the tenure of **one year**.
- **No collateral** is required to avail of the loan.
- **Processing fee:** There is no processing fee to apply for the scheme, making it cost-effective for street vendors.

Empowering Street Vendors for Self-Reliant India

SALIENT FEATURES OF PM SVANidhi (2/2)

- Graded Credit Guarantee for lending institutions through CGTMSE
- No collateral security required; No penalty charged on early payment
- Mobile App and Web Portal based application process
- In 1st phase, 125 cities selected for saturation
- Scheme to be implemented up to March, 2022

Dated: 9 September, 2020

- **Loan repayment period:** one year.

- **Interest subsidy:** On timely/early repayment of the loan, an interest subsidy @ 7% per annum. It will be credited to the bank accounts of beneficiaries through Direct Benefit Transfers on a quarterly basis.

Eligibility Criteria:-

The eligible vendors are identified as per the following criteria:-

- **Certificate of Vending/Identity Card:** Street vendors in possession of a Certificate of Vending/Identity Card issued by Urban Local Bodies (ULBs).

- Urban Local Bodies (ULBs) are encouraged to issue such

vendors the permanent Certificate of Vending and Identification Card immediately and positively within a period of one month

- **Letter of Recommendation:** Street Vendors, left out of the ULB-led identification survey or who have started vending after completion of the survey and have been issued a Letter of Recommendation (LoR) to that effect by the ULB/Town Vending Committee (TVC).

Advantages of the scheme:-

- The scheme **promotes digital transactions** through cash-back incentives up to an amount of Rs. 100 per month.
- The scheme **encourages entrepreneurship**.
- It also helps to **create employment opportunities**. ([Programme of Socio-Economic Profiling of PM SVANidhi launched](#))

MUST READ: [SVANidhi se Samridhi program](#)

SOURCE: [AIR](#)

PM Ujjwala Yojana

Context: The Government has recently, increased the LPG subsidy per cylinder by 100 rupees for the **PM Ujjwala Yojana** beneficiaries.

Background:-

- Briefing the media, Information and Broadcasting Minister Anurag Singh Thakur said that in a major decision, the Union Cabinet approved an increase in LPG subsidy, raising it from the current 200 rupees per cylinder to 300 rupees per cylinder for the beneficiaries under Pradhan Mantri Ujjwala Yojana.

About PM Ujjwala Yojana:-

- **Launched: May 2016.**
- **Ministry: Ministry of Petroleum and Natural Gas.**
- **Objective:** to make clean cooking fuel such as LPG available to the rural and deprived households that were otherwise using traditional cooking fuels such as firewood, coal, cow-dung cakes, etc.
- [PM Ujjwala 1.0](#) had a target to provide **deposit-free LPG connections to 5 crore women members of BPL households.**
- The scheme was expanded in April 2018 to include women beneficiaries from seven more categories (SC/ST, PMAY, AAY, most backward classes, tea garden, forest dwellers, etc.).
- EMI facilities were given for stove and refill costs (Interest-free loan).

Ujjwala 2.0:-

- **The Union budget for FY 21-22**, announced the provision for an **additional one crore LPG connection** under the PMUY scheme.
- Additional allocation of 1.6 Crore LPG Connections under the PMUY Scheme with a **special facility to migrant households.**
- It will provide a **deposit-free LPG connection.**
- It will also give the **first refill and hotplate (stove) free of cost to the beneficiaries.**
- The migrants will **not be required to submit ration cards or address proof.**
- A **self-declaration** for both a 'family declaration' and a 'proof of address' will suffice.
- It will **help achieve the Prime Minister's vision** of universal access to LPG.

MUST READ: [Pradhan Mantri Ujjwala Yojana \(PMUY\) – Diversion of LPG](#)

SOURCE: [AIR](#)

SHRESHTA (Residential Education for Students in High Schools in Targeted Areas)

Context: The expenditure under the **Scheme for Residential Education for Students in High Schools in Targeted Areas (SHRESHTA)** from 2020-21 to 2023-24 was released recently.

About SHRESHTA (Residential Education for Students in High Schools in Targeted Areas):-

- **Launched: June 2022.**
- **Ministry: Ministry of Social Justice and Empowerment.**
- **Objective:** for the purpose of providing seats for the meritorious SC boys and girls in the best private residential schools in the country.

Salient Features:-

- This scheme was launched for **Scheduled Castes**, as they have faced historical injustices in a hierarchical society and education is the most powerful tool to empower them as a community.
- The scheme will provide a **level playing field to the poor and meritorious SC students.** ([New National Education Policy](#))
- It aims to **enhance the reach of development Intervention of the Government** and to fill the gap in service-deficient SCs dominant areas, in the sector of education through the efforts of grant-in-aid institutions (run by NGOs) and residential high schools offering high-quality education and provide the environment for socio-economic upliftment and overall development of the Scheduled Castes (SCs).

Modes of implementation:-

The scheme is being implemented in **two Modes:-**

SHRESHTA schools:-

- Under this, each year a **specified number of meritorious SC students in States/UTs** will be selected through the National Entrance Test for SHRESHTA (NETS) to be conducted by the National Testing Agency (NTA).
- These would be admitted to the best private residential schools affiliated by the CBSE/State Board in classes 9th and 11th for completion of education till 12th standard.
- **Selection of schools:** Best performing CBSE-based private residential schools, having **more than 75% pass percentage for classes 10 and 12 for the last three years** are selected by a Committee for admission of selected students.
- **Eligibility/Selection of students:** Approx 3000 (1500 for 9th class and 1500 for class 11th tentative) SC students, whose parent's annual income is **up to 2.5 lakh**, are selected every year under the Scheme through a national-level test conducted by the National Testing Agency (NTA).
- The choices of schools shall be offered to the students in accordance with their merit. ([Education & Nation Building](#))

NGO/VO-operated Schools/Hostels:

- These include EXISTING COMPONENT, Guidelines hereinafter applicable only for Mode 2 of the Scheme, Schools/Hostels.
- These are **run by VOs/NGOs and other organizations** having higher classes (up to class 12) and who have been receiving Grant-in-aid will be continued, subject to satisfactory performance.

MUST READ: [Gender gap in education](#)

SOURCE: [PIB](#)

Bharat NCX 2023

Context: Bharat NCX 2023 was inaugurated recently.

Background:-

- Principal Scientific Advisor to the Government of India Ajay Kumar Sood today inaugurated the 'Bharat NCX 2023'.

About Bharat NCX 2023:-

- **Date:** 09 - 20 October 2023.
- **Duration:** 12 Days.
- **Conducted by:** National Security Council Secretariat in strategic partnership with Rashtriya Raksha University.
- **Objective:** to train senior management and technical personnel of Government and Critical Sector organizations and Public and Private agencies on contemporary cyber threats and handling cyber incidents and response.
- Bharat NCX 2023 will showcase an exclusive exhibition spotlighting the **innovation and resilience of Indian cybersecurity startups** and Micro, Small, and Medium-sized Enterprises (MSMEs).
- It is the **second edition** of the National Cyber Security Exercise 2023 'Bharat NCX 2023'.
- It will be conducted as a **hybrid exercise**.
- This exhibition will shine a **spotlight on the cutting-edge solutions and technologies** developed by these dynamic entities, underscoring their pivotal role in fortifying India's cybersecurity ecosystem.
- It will **host a prestigious conclave**, gathering over 200 Chief Information Security Officers (CISOs) from government, public organizations, and the private sector.
- This **exclusive gathering of industry leaders** will provide a unique platform for in-depth discussions and deliberations on the evolving cyber threat landscape. ([India's National Cyber Security Strategy](#))
- The participants will be trained in various **key cyber security areas**.

- These areas include **Intrusion Detection Techniques, Malware Information Sharing platforms, Vulnerability Handling and Penetration Testing, Network Protocols and Data Flows, and Digital Forensics.** ([Cyberattacks](#))

Significance:-

- It will help strategic leaders to better **understand cyber threats, assess readiness, and develop skills** for cyber crisis management and cooperation. ([Cybercrime](#))
- This will also help **develop and test cybersecurity skills**, teamwork, planning, communication, critical thinking, and decision-making.

MUST READ: [Global Cybersecurity](#)**SOURCE:** [AIR](#)

Mera Yuva Bharat (MY Bharat)

Context: The government has recently approved the establishment of an autonomous body **Mera Yuva Bharat (MY Bharat)** for development of youth and youth-led development.

Background:-

- Briefing reporters in New Delhi after the Cabinet meeting, Information and Broadcasting Minister Anurag Singh Thakur said that there are nearly 40 crore youth in the country who are in the age group of 15-29 years.
- The body will be dedicated to the nation on **October 31**, the birth anniversary of Sardar Vallabhbhai Patel.

About Mera Yuva Bharat (MY Bharat):-

- **Establishment: 2023.**
- **Ministry: Ministry of Youth Affairs and Sports.**
- Mera Yuva Bharat (MY Bharat) is an **autonomous body.**
- It will serve as an **overarching enabling mechanism** powered by technology for youth development and youth-led development.
- **Objective:** The primary objective of Mera Yuva Bharat (MY Bharat) is to make it a whole of Government platform for youth development.
- Under the new arrangement, with access to resources & connection to opportunities, **youth would become community change agents** and nation builders allowing them to act as **the Yuva Setu** between the Government and the citizens.
- It seeks to harness the immense youth energy for **nation-building.**
- It will benefit the youth in the **age group of 15-29 years**, in line with the definition of 'Youth' in the National Youth Policy.
- In the case of programme components specifically meant for **adolescents**, the beneficiaries will be in the **age group of 10-19 years.**
- It will provide **equitable access to youth** to actualize their aspirations and build **Viksit Bharat** across the entire spectrum of the Government.

Advantages:-

- Leadership Development in the Youth.
- Better alignment between youth aspirations and community needs.
- Enhanced efficiency through Convergence of existing programmes.
- Act as a one-stop shop for young people and Ministries.
- Create a centralized youth database.

- Improved two-way communication to connect youth government initiatives and activities of other stakeholders that engage with youth. ([‘Responsible Artificial Intelligence \(AI\) for Youth’ program launched](#))
- Ensuring accessibility by creating a physical ecosystem.

Significance: -

- It will help ensure accessibility by creating a **physical ecosystem**. ([National Youth Festival](#))
- It will help to increase the Youth **outreach efforts** of the Department of Youth Affairs.

MUST READ: [Young Professionals Scheme](#)

SOURCE: [AIR](#)

Intensified Mission Indradhanush (IMI 5.0)

Context: Intensified Mission Indradhanush (IMI 5.0), a campaign of the Union Ministry of Health and Family Welfare will conclude all 3 rounds on 14th October 2023.

About Intensified Mission Indradhanush (IMI 5.0):-

- **Launch:2023.**
- **Ministry: Ministry of Health and Family Welfare.**
- **Objective:** to enhance immunization coverage for all vaccines provided under the Universal Immunization Programme (UIP) as per the National Immunization Schedule (NIS).
- It is the flagship routine immunization campaign of the Union Ministry of Health and Family Welfare. ([Mission Indradhanush](#))

Salient Features:-

- The campaign will be conducted across the country during the months of **August, September and October** this year.
- During these three rounds, **children of the 0-5 years age group and pregnant women**, who have missed any dose of vaccine as per the National Immunization Schedule (NIS), will be vaccinated.
- This year, for the first time the campaign is being conducted across all the districts in the country and includes **children up to 5 years of age** (Previous campaigns included children up to 2 years of age).
- Government of India is committed to achieving the target of **Measles-Rubella Elimination (MR Elimination)** by December 2023 and **the Intensified Mission Indradhanush 5.0 program** is a major step toward achieving this goal. ([India’s plan to eradicate measles, rubella](#))
- Every state/ UT, has been given a target of **95% for both MR doses** (MR1, MR2) and 2 per lac population for Non Measles Non Rubella (NMNR) Discard Rate, by GOI.
- **Chandigarh** has already achieved 103% (MR1), 95%(MR2) and 6 per Lac (NMNR Discard Rate).
- IMI 5.0 is being conducted in **three rounds i.e.**, 7 -12 August, 11-16 September, and 9-14 October 2023 i.e., 6 days in a month with the inclusion of a Routine Immunization Day.
- All States/UTs except **Bihar, Chhattisgarh, Odisha and Punjab** will conclude all three rounds of the IMI 5.0 campaign by 14 October 2023.
- As of 30th September 2023, over 34,69,705 children and 6,55,480 pregnant women were administered vaccine doses during the first 2 rounds of the IMI 5.0 campaign across the country.

Significance:-

- IMI 5.0 ensures that **routine immunization services** reach the **missed-out and dropped-out children and pregnant women** across the country.

MUST READ: [mRNA Vaccine](#)

SOURCE: [PIB](#)

Special Campaign 3.0 initiative

Context: The Department of Water Resources, River Development & Ganga Rejuvenation undertook the **Special Campaign 3.0 initiative** recently.

Background:-

- The activities relating to cleanliness, review & simplification of rules & procedures, review of the record management system, productive use of space, and disposal of waste materials for enhancing workplace experience are being undertaken. ([Water Crisis in India](#))

About Special Campaign 3.0 initiative:-

- **Launched: 2nd October, 2023.**
- **Time period: from 2nd October, 2023 to 31st October, 2023.**
- **Ministry: Ministry of Personnel, Public Grievances & Pensions.**
- **Nodal Agency: Department of Administrative Reforms and Public Grievances.**

Historical Background:-

- The Special Campaign 3.0 was preceded by a preparatory phase from **15th September to 30th September 2023.**
- The launch ceremony was attended by nodal officers of Special Campaign 3.0, Nodal Officers of Public Grievances and Appellate Authorities in all the **84 Ministries/Departments of Government of India.**

Objectives of the Campaign are:-

- Digitization – Creation of Intra-Ministerial portals
- 100% digital receipts
- Efficient Management of Office Spaces – Use of Compactors
- Clearing of scrap
- Enhancement of Office Spaces – Creation of Wellness 4 Department of Administrative Reforms and Public Grievances Centres
- Improvement of Office Corridors
- Environment-friendly Practices – Automatic power systems
- EV charging stations
- Inclusivity Measures – Enabling washrooms/Elevators/ Ramps for differently-abled persons
- Washroom for ladies

Salient Features:-

- Special Campaign 3.0 focuses on **Swachhata and Reducing Pendency** in Government Offices with a saturation approach.
- It will focus on field/outstation offices responsible for **service delivery or having a public interface** in addition to the Ministries/Departments and their attached/subordinate offices.
- The Special Campaign 3.0 will be conducted in **all Central Ministries / Departments, and attached/subordinate offices** of the Government of India.
- The **Preparatory part** of the Special Campaign 3.0 will commence with the launch of the Special Campaign 3.0 portal and will continue till September 30, 2023.
- During this Ministries/Departments will **identify the pendency in selected categories** and finalize the campaign sites.
- The website <https://scdpm.nic.in> is a dedicated web portal for monitoring Special Campaign 3.0.

- All Ministries / Departments shall report monitored data on this website which is a single digital platform.
- The campaign thrust areas are MP's References, Parliamentary Assurances, PMO Inter-departmental Memos, Inter-Ministerial Consultation
- References, State Government References, Public Grievances, Public Grievance Appeals, Record Management Practices, Swachhata Campaign sites and Scrap Disposal.
- The Special Campaign 3.0 portal will open for **update of achievements data** for the campaign on October 2nd -31st and will be closed on November 5th, 2023.
- A **third-party evaluation** will be undertaken from November 14th -30th, 2023.
- DARPG has created Hashtag **#SpecialCampaign3.0** for Social Media Posts.

MUST READ: [Swachh Bharat 2.0](#)

SOURCE: [PIB](#)

Pro-Active Governance and Timely Implementation (PRAGATI)

Context: Prime Minister Narendra Modi chaired the meeting of the 43rd edition of **Pro-Active Governance and Timely Implementation (PRAGATI)** recently.

About Pro-Active Governance and Timely Implementation (PRAGATI):-

- **Launched: 2015.**
- **Designed by: PMO with the National Informatics Centre.**
- PRAGATI is the ICT-based multi-modal platform for Pro-Active Governance and Timely Implementation. ([Global Digital Governance](#))

Objectives:-

- Project implementation
- Project monitoring
- Grievance redressal

Salient Features:-

- The PRAGATI system is an **interactive and integrated platform** chiefly established to consider the grievances of the common man.
- It is a **3-tier system** including **PM, Secretaries of the GOI, and State Chief Secretaries.**
- Through this platform, **several government projects and programs /schemes will be monitored.**
- Through this platform, different secretaries of the GOI and the States' Chief Secretaries, along with the Prime Minister discussed several issues.
- The PM holds **monthly meetings** with the secretaries and Chief Secretaries through this platform.
- Through this platform, PM also discusses the issues **concerning the projects** and is also presented with the **ground-level situation.**

MUST READ: [34th PRAGATI interaction held](#)

SOURCE: [AIR](#)

Meri Maati Mera Desh campaign

Context: Prime Minister Narendra Modi will participate in the programme marking the culmination of the Meri Maati Mera Desh campaign's Amrit Kalash Yatra at Kartavya Path.

About Meri Maati Mera Desh campaign:-

- **Amrit Kalash Yatra: 1st September to 31st October 2023.**
- The Union government has launched the 'Meri Maati Mera Desh' campaign as a grand culmination of the 'Azadi Ka Amrit Mahotsav,' celebrating **75 years of Indian Independence.**

- Under this campaign soil collected from different parts of the country in August will be used to **develop a garden along the Kartavya Path in Delhi.**
- The 'Mitti Kalash' are to be brought ceremoniously to the larger municipalities/corporations and transported to Kartavya Path
- This initiative aims to honour and **commemorate the sacrifices of martyrs.**
- It includes freedom fighters, defence personnel, and members of the **Central Armed Police Forces (CAPF) and State Police, who laid down their lives in the line of duty.** ([Self-reliance in defence](#))

Five-Point Agenda:-

- **Shilaphalakam Installation:** Memorials will be erected, adorned with the names of those who made the supreme sacrifice for the nation.
- **Pledge of Commitment:** A solemn pledge will be taken by people at the memorial sites.
- **Vasudha Vandhan:** Every gram panchayat or village will participate in 'Vasudha Vandhan' by planting 75 saplings of indigenous species.
- **Veeron Ka Vandan:** Freedom fighters and the families of deceased freedom fighters will be honoured and felicitated.
- **National Flag Hoisting:** The National Flag will be proudly hoisted, and the National Anthem will resonate in unison.

MUST READ: [Defence Acquisition Council](#)

SOURCE: [AIR](#)

MISCELLANEOUS

UN Convention against Transnational Organized Crime (UNTOC)

Context: India expressed commitment towards combating organized crimes at the **UN Convention against Transnational Organized Crime (UNTOC)** recently.

About the UN Convention against Transnational Organized Crime(UNTOC):-

- **Adopted by the UN General Assembly: 15 November 2000.**
- **Entry into force: 29 September 2003.**
- **Signatories: 147.**
- **Parties: 191 (as of 20 February 2023)**
- The United Nations Convention against Transnational Organized Crime, is the **main international instrument** in the fight against transnational organized crime.
- It is also known as the **Palermo Convention**.
- **Objective:** combatting transnational organized crime, fostering international cooperation, and strengthening legal frameworks.
- UNTOC enables **cooperation between member states** for tackling international organized crime.
- All member parties to the convention must take **measures including:**
 - Creating domestic criminal offenses.
 - Adopting frameworks for extradition, mutual legal assistance, and law enforcement cooperation.
 - Promoting training and technical assistance for upgrading or building the adequate capacity of national authorities.
- The **United Nations Office on Drugs and Crime (UNODC)** is the custodian of the UNTOC.

Three protocols of UNTOC:-

The UNTOC is supplemented by **three Protocols**, namely:-

Protocol to Prevent, Suppress, and Punish Trafficking in Persons, Especially Women and Children

- Adopted in 2003, it is the first global legally binding instrument with an agreed definition of trafficking in persons.

Protocol against the Smuggling of Migrants by Land, Sea and Air

- Adopted in 2004, this protocol deals with the problem of organized criminal groups who smuggle migrants, often at high risk to the migrants and at great profit for the offenders.

Protocol against the Illicit Manufacturing of and Trafficking in Firearms, their Parts and Components and Ammunition

- Adopted in 2001, its objective is to promote, facilitate, and strengthen cooperation among States in order to prevent, combat, and eradicate the illicit manufacturing of and trafficking in firearms, their parts and components, and ammunition.

India and UNTOC:-

- India **ratified the UNTOC in 2011** becoming the fourth South Asian country to do so.
- The **nodal agency** for all dealings with UNTOC is the **Central Bureau of Investigation (CBI)**.

About UNODC:-

- **Establishment:**
- **HQ: Vienna, Austria.**
- The United Nations Office on Drugs and Crime (UNODC) contributes to **global peace and security, sustainable**

development, and human rights by helping to make the world safer from drugs, crime, corruption, and terrorism.

- It provides **technical assistance, research, and normative support** to Member States to help them develop and implement comprehensive, evidence-based solutions to the complex and interconnected threats that they face at the national, regional, and global levels. In today's challenging times, our work is needed more than ever.

Functions:-

- Tackling the world drug problem
- Preventing corruption
- Countering terrorism
- Counter-Terrorism Strategy
- Combating organized crime
- Preventing crime and promoting

Funding:-

- UNODC relies on voluntary contributions, mainly from governments, to carry out the majority of our work.

MUST READ: [World Drug Report and UNODC](#)

SOURCE: [BUSINESS STANDARD](#)

Udangudi Panangrupatti

Context: Recently, **Udangudi Panangrupatti** got the GI tag.

Background:-

- Udangudi 'Panangrupatti' (palm jaggery/ gur) has been given a Geographical Indication (GI) tag.
- The application for this was filed by Tirunelveli District Palmyrah Products Cooperative Federation Limited and Patent Information Centre, Tamil Nadu State Council for Science and Technology.

About Udangudi Panangrupatti:-

- **Location:** Udangudi, Thoothukudi district, Tamil Nadu.
- The karupatti **prepared from the palm sap** from the region around **Udangudi in Tiruchendur taluk in Thoothukudi district** has some uniqueness.
- Unlike many other areas where chemical additives like triple super **phosphate and phosphoric acid** are used, Udangudi Panangrupatti is **made without** the inclusion of any **chemical additives**.
- This is due to the **presence of red sand dune soil** found in the region.
- This soil holds **less groundwater**. ([Groundwater extraction](#))
- The **moisture content in the atmosphere is less** because of the dry climatic condition, which **leads to high sucrose content, in turn adding taste**.
- The **region's dry climate is suitable for storage** of karupatti for a longer duration.
- The production process involves the **collection of palm sap (padhaneer)** drop by drop into small earthen pots.
- This sap is collected during specific months, from **March-April to June-July**.
- The collected sap is then **boiled in large vessels**.
- **Castor seeds** are used as an antifoaming agent, and scum is removed during the boiling process.
- As the **temperature reaches a certain range**, the jaggery **thickens and changes colour**, eventually solidifying into 'Karupukatti' in coconut shells.

- Udangudi jaggery was even exported to foreign countries, including **Sri Lanka, Malaysia and Singapore.**
- Moreover, **Madurai and Tirunelveli** had more than 500 wholesale dealers for Udangudi jaggery.

MUST READ: [Gl tag for Narasinghapettai nagaswaram](#)

SOURCE: [THE NEW INDIAN EXPRESS](#)

Sastra Ramanujan Prize

Context: The 2023 **SASTRA Ramanujan Prize** was awarded to **Ruixiang Zhang** of the University of California, Berkeley.

Background:-

- His fundamental work spans **analytic number theory, combinatorics, Euclidean harmonic analysis, and geometry.**
- The prize will be awarded at an International Conference in Number Theory on December 20-22 at SASTRA University in Kumbakonam, Ramanujan's hometown.

About Sastra Ramanujan Prize:-

- **Established in 2005.**
- **Instituted by:** Shanmugha Arts, Science, Technology & Research Academy (SASTRA).
- **Time Period:** annual.
- **Objective:** to acknowledge and encourage exceptional achievements in mathematics.
- It is a **prestigious Award** in the field of mathematics.
- It promotes mathematical research and honors **exceptional achievements.**
- This prize is for **outstanding contributions by individuals in areas of mathematics** influenced by Indian mathematics great Ramanujan.
- **Decoration:** A cash prize of **USD 10,000.** ([Golden Globes Award](#))
- **Age limit:** It is presented to individuals **aged 32 and below.**
- The age limit of 32 years is to **commemorate the fact that Ramanujan accomplished** a phenomenal body of work in this short span.
- SASTRA Ramanujan Prize 2023 will be awarded to **Ruixiang Zhang** of the University of California, Berkeley. ([Padma awards](#))
- His fundamental work spans analytic number theory, combinatorics, Euclidean harmonic analysis, and geometry.
- Building on his doctoral thesis, he and Shaoming Guo proved a generalization of the main conjecture in Vinogradov's mean value theorem, which is concerned with the sums of numbers raised to a certain power.

MUST READ: [Chess Olympiad](#)

SOURCE: [THE HINDU](#)

Nobel Prize in Physics 2023

Context: The **Nobel Prize in Physics 2023** was announced recently.

About Nobel Prize in Physics 2023:-

- **Awarded by:** Royal Swedish Academy of Sciences.
- The 2023 Nobel Prize in Physics has been awarded to **Pierre Agostini, Ferenc Krausz, and Anne L'Huillier.** ([Nobel Prize In Physics 2020](#))
- They were awarded for their work in "experimental methods that **generate attosecond pulses of light** for the study of electron dynamics in matter.

- Attosecond pulses of light offer an unprecedented **capability to study rapid electron movements and energy changes within atoms and molecules.**
- These pulses have revolutionized the field of electrodynamics in matter.
- They **provide a powerful tool for exploring fundamental processes in physics and chemistry.**
- These pulses can be used to provide **images of the processes inside atoms and molecules.**
- They have opened **new avenues for studying the behavior of electrons** within atoms and molecules, revolutionizing the field of electrodynamics in matter.
- While Ferenc Kraus is a **German Physicist**, Anne L'Huillier is from Sweden and Pierre Agostini is an American.
- Anne L'Huillier is the **fifth woman to receive the Nobel Prize in Physics.**
- **Significance:** The laureates' contributions have enabled the investigation of processes that are so rapid they were previously impossible to follow.

Application Potentials:-

- **Blood Sample Analysis:** It can revolutionize disease diagnosis, including conditions like lung cancer.
- **Semiconductor Technologies:** The technology can serve as a powerful imaging tool.
- **Understanding Nature Processes:** This can deepen our understanding of complex natural processes, particularly photosynthesis.

MUST READ: [Physics Nobel Prize 2021](#)

SOURCE: [AIR](#)

2023 Nobel Prize for Medicine

Context: The **2023 Nobel Prize for Medicine** has been jointly awarded to United States scientists Katalin Kariko and Drew Weissman.

About the 2023 Nobel Prize for Medicine:-

- Katalin Kariko and Drew Weissman were awarded for **work that led to effective [mRNA vaccines](#) against COVID-19.**
- The discoveries and findings by Kariko and Weissman fundamentally **changed the understanding of how mRNA interacts with the human immune system.** ([Nobel Prize in Medicine 2022](#))
- They eliminated critical obstacles on the way to clinical applications of mRNA, paving the way for the **speedy development of mRNA vaccines** that saved millions during the pandemic.
- **Genetic information encoded in human DNA is transferred to messenger RNA (mRNA)** in the body's cells and is used as a template for protein production.

Using mRNA in vaccine development:-

- Scientists were able to **produce mRNA without cell culture in the 1980s**, in a process known as **in vitro transcription.**
- This began the research on **using mRNA for vaccine and therapeutic purposes.**
- However, **in vitro transcribed mRNA was considered unstable** and challenging to deliver.
- It required the **development of sophisticated carrier lipid systems** to encapsulate the mRNA.
- Moreover, **in vitro-produced mRNA** gave rise to **inflammatory reactions.**
- Karikó and Weissman performed an experiment to seek a remedy to this problem.
- **Hypothesis:** Karikó and Weissman tested **whether the absence of altered bases in the in vitro transcribed RNA** could explain the unwanted inflammatory reaction.
- **Experiment:** They **produced different variants of mRNA, each with unique chemical alterations** in their bases, and then delivered them to the dendritic cells.
- **Findings:** They found that the **inflammatory response was almost abolished when base modifications** were included in the mRNA.

- By this, Karikó and Weissman **showed that the delivery of mRNA generated with base modifications** can markedly **increase protein production** compared to unmodified mRNA and also **reduce the inflammatory responses**.
- **Using this approach**, two base-modified mRNA vaccines encoding the SARS-CoV-2 surface protein **were developed** at record speed **during the outbreak of the COVID-19 pandemic**.
- Protective effects of around 95 percent were reported, and **both vaccines were approved** as early as December 2020.
- **Significance:** Such vaccines have resulted in saving saved millions of lives and prevented severe disease in many more, allowing societies to open and return to normal conditions.

About DNA:-

- DNA is a deoxyribonucleic acid and is a **hereditary material**.
- It occurs inside the **nucleus of the cell** and **some cell organelles**.
 - In plants it is present in **mitochondria and plant cells**.
- It is a **double-stranded molecule** consisting of a long chain of nucleotides.
- It **stores and transfers genetic information** to generate new cells and organisms.
- It has **two nucleotide strands** consisting of a **phosphate group, five-carbon sugar** (stable deoxyribose 2), and **four nitrogen bases**.
- The four nitrogen bases in RNA include **adenine, guanine, cytosine, and thymine**.
- They form complementary pairs of **Adenine links to Thymine (A-T)** and **Cytosine links to Guanine (C-G)**.
- DNA is **self-replicating**.
- Quantity of DNA is **fixed for cells**.

About RNA:-

- RNA contains **four bases, abbreviated A, U, G, and C**, corresponding to A, T, G, and C in DNA, the letters of the genetic code.
- RNA, an abbreviation of **ribonucleic acid**.
- It is a **type of nucleic acid that contributes to protein synthesis**.
- It is **synthesized from DNA** when needed.
- It is **single** consisting of a **phosphate group, a five-carbon sugar (less stable ribose), and four nitrogen bases**.
- The four nitrogen bases in RNA include **adenine, guanine, cytosine, and uracil**.
- It **replaces DNA (deoxyribonucleic acid) as a carrier of genetic codes in some viruses**.
- It consists of **ribose nucleotides** (nitrogenous bases bound to a ribose sugar) connected by **phosphodiester bonds**, forming variable-length chains.
- Uracil is replaced by **thymine in DNA**.
- The quantity of RNA in a cell is **variable**.

RNA Types:-

- **tRNA:** it is responsible for selecting the correct protein or the amino acids that the body requires to help the ribosomes in turn.
- **rRNA:** it is the ribosome portion and is located within a cell's cytoplasm, where ribosomes are found.
 - It is mainly involved in the **synthesis and translation of mRNA into proteins**.
- **mRNA – Messenger RNA:** this RNA is responsible for bringing the genetic material to the ribosomes and insists on what kind of protein the body needs.
 - It is therefore called messenger RNA.
 - This m-RNA is usually involved in the **transcription process**, or during the process of protein synthesis.

MUST READ: [Nobel Peace Prize 2022](#)

SOURCE: [DOWN TO EARTH](#)

Chemistry Nobel 2023

Context: The **Chemistry Nobel 2023** was announced recently.

Background:-

- The Nobel Prize in Chemistry 2023 was awarded to **Moungi G. Bawendi, Louis E. Brus, and Alexei I. Ekimov.** ([Nobel Prize for Chemistry 2021](#))

About Chemistry Nobel 2023:-

- The 2023 Nobel Prize in Chemistry was awarded for the **discovery of quantum dots used in light-emitting diode or LED lights.**
- These particles have **unique properties** and now spread their light from television screens and LED lamps.
- They **catalyze chemical reactions** and their clear light can illuminate tumour tissue for a surgeon.

Timeline of the experiments:-

- In the early 1980s, this year's chemistry laureates **Louis Brus and Alexei Ekimov** succeeded in creating (independently of each other) **quantum dots.**
- In 1993, chemistry laureate **Moungi Bawendi** revolutionized the methods for **manufacturing quantum dots, making their quality extremely high** which is a vital prerequisite for their use in today's nanotechnology.

Understanding the significance of the Experiment:-

- Quantum dots are nanoparticles or small particles ranging **between 1 and 100 nanometres in size.** ([Cordy gold nanoparticles](#))
- These are so tiny that **their size determines their properties.**
- The **smallest quantum dots shine in blue** and the **big ones shine in yellow and red**, and they only differ by size.
- The team succeeded in **growing nanocrystals of a specific size.**
- They did this by **varying the temperature of the solution.**
- These crystals also had a **smooth and even surface.**
- Researchers primarily **utilized quantum dots** to create coloured light.

Applications:-

- The quantum dots can contribute to flexible electronics, miniscule sensors, slimmer solar cells, and perhaps encrypted quantum communication.
- It can Help spread light from television screens.
- It can help LED lamps use their clear light to illuminate tumor tissue during surgery.

MUST READ: [Nobel Prize Chemistry 2022](#)

SOURCE: [DOWN TO EARTH](#)

SAMPRII-XI

Context: The 11th edition of the **Exercise SAMPRII**, began recently.

About SAMPRII-XI:-

- **Date: October 3, 2023.**
- **Venue: Umroi, Meghalaya, India.**
- SAMPRII, was **initiated in 2009.**
- **Objective:** to boost interoperability, share tactical expertise, and promote best practices between the [Indian and Bangladeshi](#) armies.
- It is an **annual joint military exercise**, between **India and Bangladesh.**
- This exercise, **alternates** between the two nations.
- It highlights the **strong bilateral defense cooperation** between the two countries. ([Maitri Diwas](#))

- SAMPRITI-XI is scheduled for a duration of **14 days**.
- It will involve approximately **350 personnel** from both India and Bangladesh.
- **Focus:** enhancing cooperation and interoperability while conducting Sub-Conventional Operations as per Chapter VII of the UN mandate.
- It consists of a **Command Post Exercise (CPX), a Field Training Exercise (FTX), and a Validation Exercise**.

MUST READ: [Maitri Setu between India and Bangladesh](#)

SOURCE: [PIB](#)

5th National Water Awards 2023

Context: Recently, the Department of Water Resources, River Development and Ganga Rejuvenation launched the **5th National Water Awards 2023**.

Background:-

- All the applications for the awards will be received through the online portal till 15th December.

About the 5th National Water Awards 2023:-

- **First National Water Award: 2018.**
- **Ministry: Ministry of Jal Shakti.**
- The awards were introduced to recognize and encourage exemplary work and efforts made by States, Districts, individuals, and organizations, across the country in accomplishing the government's vision of Jal Samridh Bharat.
- It aims to sensitize the public about the importance of water and motivates them to adopt the best water usage practices.

Objectives:-

- To encourage the stakeholders to adopt a holistic approach towards **water resources management** in the country.
- To create awareness among the people about the importance of water and attempt to motivate them to adopt the **best water usage practices**.
- Start-ups, leading organizations and people can engage, deliberate and strengthen existing partnerships on issues concerning water **conservation and management activities**.

Eligibility for the awards:-

- Any State, District, Village Panchayat, Urban Local Body, School/College, Institution (other than school/college), Industry, Civil society, Water User Association or an
- individual who has **done exemplary work in the field of water conservation and management** are eligible to apply.

Trophy and Citation:-

- For the categories - '**Best State**' and '**Best District**', winners will be felicitated with a **trophy and citation**.
- **In the remaining categories** - 'Best Village Panchayat', 'Best Urban Local Body', 'Best School/College', 'Best Institution (other than school/college)', 'Best Industry', 'Best Civil Society', 'Best Water User Association', 'Best Industry', and 'Best Individual for excellence' winners will be felicitated with **cash prize along with trophy and citation**.
- **Cash prizes** for the 1st, 2nd, and 3rd winners are **Rs.2 lakhs, Rs.1.5 lakhs, and Rs.1 lakh, respectively**.

Selection Process:-

- All applications received for the National Water Awards are **scrutinized by a Screening Committee** of the DoWR, RD & GR.

- The **shortlisted applications** are placed before a **Jury Committee** headed by a retired Secretary level officer.
- Thereafter, ground truthing of the shortlisted applications is carried out by the organizations of DoWR, RD & GR viz. Central Water Commission (CWC) and Central Ground Water Board (CGWB).
- The Jury Committee evaluate the applications on the basis of reports of ground truthing and **recommends the winners**.
- The **recommendations of the Committee** are submitted to the Union Minister (Jal Shakti) for approval.
- The names of the **winners are announced** on a suitable date and an award distribution ceremony is organized.

Significance:-

- India has more than 18% of the world's population, it has only 4% of the world's renewable water resources. ([Water Crisis in India](#))

MUST READ: [Rashtriya Puruskar Portal](#)**SOURCE:** [AIR](#)

Operation Ajay

Context: Two more flights Under **Operation Ajay** arrived in India carrying Indian nationals from war-torn Israel recently.

About Operation Ajay:-

- **Beginning: 12 October 2023.**
- **Objective:** the government will bring back its citizens through special chartered flights.
- Operation Ajay is a mission aimed at **repatriating Indian citizens who were residing in Israel**.
- The Indian government will be sending special chartered flights to repatriate citizens from Israel and Palestine.
- **Indian Navy ships** may also be sent if the need arises.

Current Situation in Israel:-

- Israel continued its strikes against Hamas militants in Gaza, in response to a brutal assault in Israel by Hamas recently.
- So far, 2,300 lives have been lost on both sides. ([ISRAEL-PALESTINE CONFLICT](#))
- The situation continues to be grim.

Diaspora:-

- Around **18,000 Indians** are currently in Israel.
- Of these, most of them are **caregivers**.
- There are also about 1,000 students, several **IT professionals and diamond traders**.
- At least **17 Indians are stranded in Palestine**, which includes aid workers and those who went there for business.

Communication helplines:-

- The Indian embassy in Israel communicates with **registered Indian citizens** through email, providing instructions and updates for subsequent flights.
- The Ministry of External Affairs has set up a **24-hour control room** to monitor the ongoing developments.
- In addition, the **Embassy of India in Tel Aviv** has set up a 24-hour emergency helpline, which can be accessed.
- Further, the **Representative Office of India in Ramallah** has also set up a 24-hour emergency helpline.

Significance: -

- Operation Ajay Acts as a model for effective and flexible evacuation procedures, guaranteeing the **safety of people during trying circumstances.** ([Vande Bharat Mission and International Cooperation](#))

MUST READ: [Operation Sadbhavana](#)

SOURCE: [AIR](#)

KatiBihu

Context: The Prime Minister, Modi extended his best wishes on the auspicious occasion of **KatiBihu**.

About KatiBihu:-

- Bihu is the collective name of **3 Assam festivals** (all held in the state of Assam): **Rongali Bihu or Bohag Bihu** (mid-April), **Kati Bihu or Kongaali Bihu** (mid-October) and **Magh Bihu or Bhogaali Bihu** (mid-January).
- Kati Bihu is celebrated on the **first day of the 'Kati'** month in the Assamese calendar which usually falls somewhere in **mid-October**.
- This year, it is observed on **October 18**.
- Kati means **to cut** and during this time the rice-sapling is relocated.
- It is also called the **Kangali Bihu** — from 'kangali,' meaning 'poor' because by this time of year, the house of an **ordinary family is without food grains**, as the stock is usually consumed before the next harvest.
- The festival marks the **relocation of the rice crop** and the **beginning of the fresh harvest** season.
- Kati Bihu is an observation of **service, penance, and the hope** for a better future.
- The festival is celebrated across **the state of Assam**.
- **Lamps are lit** outside the homes, and a pathway of bamboo is constructed as a trail for the ancestors.
- The main lamp is placed in the courtyard where the **Tulsi plant is present**.
- The Tulsi plant is cleaned for the festival and is kept on an earthen platform called "**Tulsi Bheti**."
- People make **offerings and pray to Goddess Tulsi** for the well-being of their family and to have a good harvest. ([Bihu](#))
- People also light a special lamp called "**Akash Banti**" (Sky candle) in their paddy fields.
- The festival is celebrated for the **entire month of Kati**.

MUST READ: [Kathakali dance](#)

SOURCE: [PIB](#)

Abu Dhabi Masters 2023

Context: Unnati Hooda won the women's singles title at **Abu Dhabi Masters 2023**.

Background:-

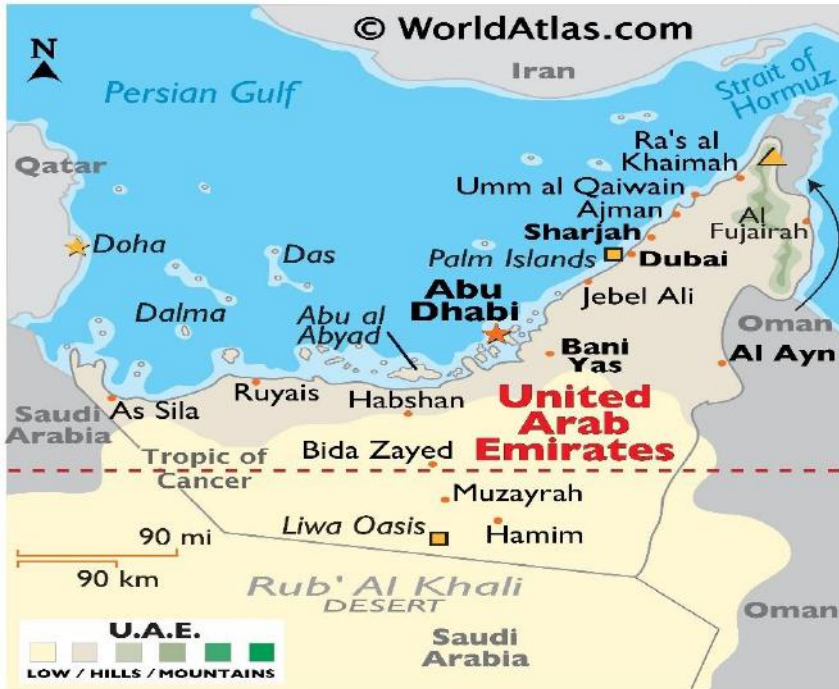
- This is her **second BWF Super 100 World Tour title**.
- She became the **youngest Indian to clinch** a BWF title last year at 14 years of age.

About Abu Dhabi Masters 2023:-

IMAGE SOURCE: [WorldAtlas](#)

- **Date: 17 - 22 OCTOBER, 2023.**
- **Venue: ADNEC Marina Hall, Abu Dhabi, UAE.**
- Abu Dhabi Masters 2023 is the **first-ever International badminton spectacle** in the capital city.

- It will take place under the esteemed patronage of **Shaikh Nahyan bin Mubarak Al Nahyan, the UAE Badminton Federation**, in partnership with **316 Sports Services**. ([Grand Slam](#))



UAE Badminton Federation, in partnership with **316 Sports Services**. ([Grand Slam](#))

- This historic occasion promises to be a thrilling showcase of talent, skill, and sportsmanship, bringing together **200 professional players** from around the world. ([Sports Code](#))

MUST READ: [Chess Olympiad](#)

SOURCE: [AIR](#)

Bishan Singh Bedi

Context: Bishan Singh Bedi, former India spinner, captain and coach, passed away at 77 years old in Delhi.

About Bishan Singh Bedi:-

- Birth: 25 September 1946.**
- Birth place: Punjab.**
- Death: 23 October 2023.**
- Bedi was **one India's iconic spin bowling combination** that also featured BS Chandrasekhar and S Venkataraghavan.
- He made his **debut against West Indies in 1966** and played his last Test against England **at The Oval in 1979.**
- Bedi, who represented Delhi in domestic cricket, held the remarkable feat of being the **highest wicket-taker among Indian players** in First-Class cricket, amassing a staggering 1,560 wickets in 370 matches.
- He played **67 Tests for India** between 1967 and 1979.
- He took **266 wickets** in his illustrious career.
- He also **captained the national side in 22 Test matches.**
- He was **central to India's first ODI win** when he registered figures of 12-8-6-1 to restrict East Africa to 120 in a 1975 World Cup match.
- He was an **integral part of a famed quartet** of India's world-beating spin bowlers in the 1960s and 70s, which included Erapalli Prasanna, Bhagwat Chandrasekhar and Srinivas Venkataraghavan.

Awards:-

- In 2021, Bedi was picked by readers for a place in **BBC Sport's all-time India Test XI.**
- He was awarded the **Padma Shri award in 1970.**
- He was awarded the **C. K. Nayudu Lifetime Achievement Award in 2004.**

MUST READ: [Sports Code](#)

SOURCE: [THE INDIAN EXPRESS](#)



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MAINS

Paper I

Circular migration: looking at both sides of the debate

Context: In India, internal migration, which is migration within a particular country or State, has almost always been circular.

- With rapid industrialisation, there has been a huge flow of migrants from rural areas to urban cities.

About circular migration:

- Circular migration is defined by temporary residence, potential for multiple entries, and freedom of movement between origin and destination.
- A circular migrant completes at least two loops between the origin and destination.
- India experiences substantial internal circular migration, notably from rural to urban areas, often for jobs in sectors like construction.
- According to Philippe Fargues, migration can define as circular if it meets the following criteria:
 - there is a temporary residence in the destination location ,
 - there is the possibility of multiple entries into the destination country,
 - there is a freedom of movement between the country of origin and the country of destination during the period of residence,
 - there is a legal right to stay in the destination country,
 - there is protection of migrants' rights, and
 - if there is a healthy demand for temporary labour in the destination country.

Circular migration within India:

- In India, internal migration has almost always been circular.
- Between **2004–2005 and 2011–2012**, the construction sector witnessed one of the largest net increases in employment for all workers, specifically for rural males.
- In India, the **uneven development post-liberalisation**, has led to a lot of inter-State migration, with States like **West Bengal, Odisha and Bihar** having some of the highest rates of out-migration.
- Initially, while most of the migration was to Delhi, nowadays it has increased to southern States as well.

Positive Impacts of circular migration:

- **Labor Demand and Supply:** Migration fills gaps in demand for and supply of labor, and efficiently allocates skilled labor, unskilled labor, and cheap labor.
- **Economic Remittances:** The economic well-being of migrants provides insurance against risks to households in the areas of origin, increases consumer expenditure and investment in health, education and assets formation.
- **Skill Development:** Migration enhances the knowledge and skills of migrants through exposure and interaction with the outside world.
- **Social Remittances:** Migration helps to improve the social life of migrants, as they learn about new cultures, customs, and languages which helps to improve brotherhood among people and ensures greater equality and tolerance.

- **Food and Nutrition Security:** According to the 2018 State of Food and Agriculture report by [Food and Agriculture Organization](#) (FAO), outmigration often leads to improved food and nutrition security for migrants.
- **Demographic Advantage:** As a result of outmigration, the population density of the place of origin is reduced and the birth rate decreases.
- **Climate Change Adaptive Mechanism:** Migration has also emerged as a possible adaptive mechanism in the context of climate change and the occurrence of extreme weather events like floods, droughts, and cyclones.

Negative Impact of circular migration:

- **Demographic Profile:** Emigration in large numbers can alter demographic profiles of communities, as most of the young men move out, leaving only the women and elderly to work on the land.
- **Political Exclusion:** Migrant workers are deprived of many opportunities to exercise their political rights like the right to vote.
 - **Population Explosion and the Influx of workers** in the place of destination increases competition for the job, houses, school facilities etc and a large population puts too much pressure on natural resources, amenities, and services.
- **Illiterate and Under-skilled Migrants** are not only unfit for most jobs, because of a lack of basic knowledge and life skills but are also prone to the victimization of exploitation, trafficking, psychological abuse, and gender-based violence in the case of female migrants.
- **Increased Slum:** Mass Migration results into an increase in slum areas, compromising quality of infrastructure and life at the destination, which further translates into many other problems such as unhygienic conditions, crime, pollution, etc.

Challenges of circular migration:

- **Worker Exploitation:** In India, circular migrants, particularly to southern states, can face exploitation and unsafe working conditions.
 - They sometimes work in unsanitary conditions, with limited protective equipment, and might deal with middlemen or brokers who may take advantage of them.
- **Economic Strain:** Migrants often engage in low-skill jobs, earning just enough to support themselves and their families, with little room for savings or asset creation.
 - Although they may access higher-paying jobs in the destination, the work is often seasonal and irregular, leading to financial instability.
- **Pressure on Society and Infrastructure:** Both rural and urban areas can experience different kinds of strain.
 - Rural areas might see economic and demographic declines, while urban areas might face infrastructural breakdown due to the influx of migrants.

Steps taken by the Government for Migrant Workers:

- [Prime Minister Street Vendor's AtmaNirbhar Nidhi \(PM SVANidhi\) Scheme](#): Provides affordable working capital loans to street vendors to restart their livelihoods that have been adversely affected due to the Covid-19 lockdown.
- [Pradhan Mantri Garib Kalyan Yojana](#): It is a food security welfare scheme announced during the COVID-19 pandemic in India.

- **Garib Kalyan Rojgar Abhiyaan (GKRA) initiative**: GKRA aims to give employment to migrant workers, that has gone back to rural areas during COVID-19 migrant crisis.
- **e-Shram portal**: It is a centralized database of unorganized workers seeded with Aadhaar.
 - It envisages the optimum realization of their employability and extension of social security scheme benefits to them.
- **National policy on migrant workers**: The draft policy by NITI Aayog makes efforts to bring together different sectoral concerns related to migration, including social protection, housing, health and education.
- **One Nation One Ration Card scheme**: It allows migrant labourers to get ration benefits from any part of the country, irrespective of the place where their ration card is registered.
- **PM Awas Yojana**: A scheme to provide affordable housing for migrants too.
- **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and Pradhan Mantri Suraksha Bima Yojana (PMSBY)**: Provides for life & disability cover due to natural or accidental death.
- **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PMJAY)**: Provides Rs.5 lakh health coverage for secondary and tertiary health benefits to those migrant workers who are covered as eligible beneficiaries as per deprivation and occupation criteria.

Source: [TH](#)

CONCERNS WITH INTERLINKING RIVERS

ABOUT THE INTERLINKING RIVERS

- Inter Linking of Rivers refers to inter-basin water transfers between 2 or more rivers through human interventions on natural systems.
- India's National Water Development Agency (NWDA) has suggested the interlinking of rivers of the country.
- The interlinking of rivers has two components: the Himalayan and the Peninsular. All interlinking schemes are aimed at transferring of water from one river system to another or by lifting across natural basins.
- Because of Large variation in rainfall and subsequent availability of water resources in space and time, floods and drought coexist in our country in same time and space. (Kerala, T.N and South Karnataka is facing drought while Rajasthan, Gujarat, Assam reeling under floods)
- The project is aimed at addressing droughts and floods.

CONCERNS WITH INTERLINKING RIVERS

Ecological Concerns

- Water scientists and Environmentalists have remarked that the water flowing into the sea is not waste. It is a crucial link in the water cycle. With the link broken, the ecological balance of land and oceans, freshwater and sea water, also gets disrupted
- It is feared that diversion of water from the Brahmaputra and the Ganges, which provide 85% of the country's fresh water flow in the dry season, would result into an ecological disaster.

Economic Concerns

- As this project is of massive estimated cost, a long term planning and a sound financial simulation are required to meet the standard for such proposals The huge expenditure of the project and the maintenance costs associated with the dams, canals, tunnels, and captive electric power generation will involve huge financial burdens.

- This may generate fiscal problems that are difficult to handle.
- This certainly requires financial assistance from the private sector as well as global capital agencies.
- Mobilization of global capital may ultimately entail the risk of destroying social welfare measures.

Environmental concerns

- It will result in massive diversion of forest areas and submergence of land leading to deforestation and soil- erosion.
- For example The Ken-Betwa link project puts in danger over 4,100 hectares of forest land or 8% of the Panna National Park.
- There will be destruction of rivers, aquatic and terrestrial biodiversity, fisheries and groundwater recharge.
- Possible downstream impacts, salinity ingress, pollution concentration, and increased methane emission from reservoirs are other adverse repercussions.
- It could most likely create trigger points of natural disasters like landslides, earthquakes etc. as seen in case of Koyna dam and Tehri dam.

Social Concerns

- Reconstruction and rehabilitation due to displacement is not an easy task as seen before.
- The construction of reservoirs and river linking canals in the peninsular component alone expect to displace more than 5, 83,000 people and submerge large areas of forest, agriculture and non-agriculture land.
- It is likely to create social unrest/psychological damage and cultural alienation due to forced resettlement of local indigenous tribal community.

Political issue

- Water being a state subject, the Interlinking plan further complicates existing water sharing and management problems between the riparian states.
- Some of the Interlinking Rivers schemes have international implications, which may create strained relationship with neighboring countries like Bhutan, Nepal and Bangladesh.

CONCLUSION

While river interlinking projects in India aim to address water-related challenges, they come with a range of environmental, social, political, and economic concerns. A comprehensive and transparent assessment of the potential benefits and risks is necessary before proceeding with such large-scale projects. It is essential to involve all stakeholders, including affected communities, in the decision-making process to ensure that their concerns are addressed and that the projects are implemented with sustainability and long-term considerations in mind.

Paper II

Digital India Act 2023

Syllabus

- **Mains – GS 2 (Governance)**

Context: Nations worldwide are grappling with the need to update their legal frameworks to adapt to the evolving digital landscape.

- India, with its ambitious '**Digital India**' initiative, is no exception.
- The recent announcement of the **Digital India Act 2023 (DIA)** represents a significant step towards establishing a future ready legal framework for the country's burgeoning digital ecosystem.

About Digital India Act 2023 (DIA):

- The **Ministry of Electronics and Information Technology (MEITY)** signals a proactive approach to regulating and shaping the digital future of the nation.
- The DIA, poised to replace the two decades **old Information Technology Act of 2000 (IT Act)**, is designed to address the challenges and opportunities presented by the dramatic growth of the internet and emerging technologies.
- The primary motivation behind the DIA is to bring India's regulatory landscape in sync with the **digital revolution of the 21st century**.
 - Since its inception, **India's internet user** base has exploded from a mere 5.5 million to a **staggering 850 million**.

Key Components of the act:

- **Open Internet:** According to the Indian government, open internet should have **choice, competition, online diversity, fair market access, ease of doing business** as well as ease of compliance for startups.
 - These characteristics prevent the **concentration of power and gatekeeping**.
- **Online Safety and Trust:** The Act will focus on safeguarding users against cyber threats like **revenge porn, defamation, and cyberbullying** on the internet as well as the dark web.
 - It aims to push for digital rights like **the Right to be Forgotten and the Right to Digital Inheritance**, protect minors and their data from addictive technology, and moderate fake news on social media platforms.
- **Accountable Internet:** The Act aims to make internet users and activities more accountable by introducing legal mechanisms for redressal of complaints, upholding constitutional rights in **cyber spaces, algorithmic transparency and periodic risk assessments, and disclosure norms** for data collected by intermediaries.

Key provisions of the act:

- The DIA encompasses several pivotal clauses that mirror the dynamic evolution of the digital environment, addressing its multifaceted challenges and opportunities.
 - These provisions underscore the legislation's responsiveness to the ever-changing digital landscape.
- DIA places a strong emphasis on online safety and trust, with a commitment to safeguarding citizen's rights in the digital realm.
- It also recognises the growing importance of new age technologies such as **artificial intelligence and block chain**, the DIA provides guidelines for their responsible utilisation.
- It aims to not only encourage the adoption of these technologies but also to ensure that their deployment is in line with ethical and legal principles.
- It **promotes ethical AI practices**, data privacy in blockchain applications, and mechanisms for accountability in the use of these technologies.
 - It upholds the **concept of an open internet**.
- It aims to **strike a balance between accessibility and necessary regulations** to maintain order and protect users.
- It also contemplates a **review of the "safe harbour" principle**, which presently shields online platforms from liability related to user generated content, indicating a potential shift in online accountability standards.

Need for Digital India Act:

- **Outdated Regulations:** The existing IT Act of 2000 was crafted in an era when the internet had only 5.5 million users, and is ill-equipped to handle the internet's current state.
 - With **850 million users**, various intermediaries, and new forms of user harms like cyberstalking and doxing, the IT Act falls short of addressing these complexities.
- **Addressing E-commerce and Online Content:** The growth of e-commerce, digital transactions, and online content sharing requires updated regulations.
 - The Digital India Act will tackle issues related to consumer protection, electronic contracts, and content moderation on social media platforms.
- **Global Alignment and Best Practices:** To engage effectively in the global digital landscape, India's regulations must align with international standards and practices.
- **Inadequacy of Current Regulations:** Despite the existence of regulatory elements like Intermediary Guidelines, Digital Media Ethics Code, and data protection rules, they are insufficient when it comes to governing new-age technologies.
- **Need for Legal Adaptation:** With technological advancements like **AI, Blockchain, and IoT**, the **legal framework** must evolve to address their unique challenges.
 - This includes enhancing cybersecurity measures, data protection, and regulating emerging tech sectors.

Challenges associated with the DIA act 2023:

- Stricter regulations, particularly in emerging technologies, could deter entrepreneurial initiatives and deter foreign investments.
- The review of the **“safe harbour” principle**, which shields online platforms from liability for **user-generated content**, could lead to a more cautious approach among these platforms, **possibly impinging on freedom of expression**.
- **While transparency and accountability** are the founding pillars of the act it will also have to balance the **interests of important stakeholders** like users, big techs, government, businesses, and civil society.

Way Forward:

Although the DIA is a progressive move, its implementation and potential repercussions warrant vigilant monitoring and adaptability to avoid unintended consequences. The DIA is a crucial step towards ensuring a secure, accountable, and innovative digital future for India.

Source: [TH](#)

The concerns of using Aadhaar in welfare schemes

Syllabus

- **Mains – GS 2 (Governance)**

Context: Recently, credit rating agency Moody's Investor Service released a report, '**Decentralised Finance and Digital Assets**,' which advocates for decentralized digital identity systems instead of centralized biometric systems like India's Aadhaar.

- Referring to **“security and privacy vulnerabilities posed by centralized ID systems like Aadhaar”**, the report states “the Aadhaar system faces hurdles, including the burden of establishing authorization and concerns about biometric reliability.”

- The government stated that it is evident that the authors of the report are unaware that the seeding of Aadhaar in the [MGNREGS](#) database has been done **without requiring the worker to authenticate**.

About Aadhaar:

- The Aadhaar card is a **12-digit unique number** issued by the [Unique Identification Authority of India \(UIDAI\)](#).
- It contains biometric information, such as fingerprints and iris scans, along with demographic information, including individuals' addresses and date of birth.
- It **serves as proof of identity** and is valid anywhere in India for any identification purposes.
 - Having an Aadhaar card is compulsory while applying for a new PAN card or filing Income tax returns.

Advantages of using Aadhaar:

- **Transparency in identification of beneficiaries for welfare schemes:** Aadhaar has helped to remove fake and duplicate identities of beneficiaries.
 - It has been used to filter the list of beneficiaries and stop the leakage of public money.
- **Targeted delivery of welfare measures:** JAM trinity (Jan Dhan Yojana, Aadhaar and Mobile numbers) has been employed for targeted delivery of subsidies.
 - Use of Aadhaar Card for distributing social welfare schemes has led to better targeting of poor which were suffering by leakages.
- **Aadhaar has helped in mapping development parameters:** In critical sectors of the country like healthcare and education, Aadhaar has been used to map the development processes and parameters.
 - It has also been used to map skilled manpower, based on the vocational training acquired by the individual with the suitable job vacancies/ skill requirements.
- **Quick and easy Income tax returns:** Use of Aadhaar in income tax filing has reduced the number of documents needed for filing income tax.
 - It has made the process more efficient and cost-effective.
- **Phase out of corruption:** The use of Aadhaar in financial transactions has reduced the menace of black money in the country thereby reducing the corruption.

Concerns associated with Aadhaar:

- **Quantity fraud:** In the distribution of rations, the prevalent type of corruption is quantity fraud, where beneficiaries receive less than their entitled share.
 - Aadhaar does not address this issue effectively.
- **Authentication failures:** Many individuals in rural areas face authentication failures due to unreliable internet connections, fading fingerprints, or lack of phone connectivity for OTP verification. The extent of these failures remains undisclosed.
 - A report by the **Comptroller and Auditor General of India (CAG)** from 2022 states **“UIDAI did not have a system to analyze the factors leading to authentication errors.”**
- **Privacy at risks:** UIDAI has not ensured that the applications or devices used by agencies or companies for authentication “were not capable of storing the personal information of the residents, which put the privacy of residents at risk”.

- **Authentication Errors:** Discrepancies between job card information and UID data can lead to authentication errors, causing wage payment delays and complications.
- **Misdirected Payments:** Aadhaar payments can be misdirected when an individual's Aadhaar number gets linked to another person's bank account, making it challenging to detect and resolve such issues.
 - Aadhaar payments people got redirected to Airtel wallets causing much havoc. Misdirected payments through Aadhaar are difficult to detect and are nearly impossible to resolve.
- **Last-mile delivery in rural areas faces issues of lesser Bank penetration:** The last-mile delivery is a significant challenge with the problem of lesser banking infrastructure in rural areas and the failure of the banking correspondent model to take off.
- **Questionable savings claims:** Claims of substantial savings through Aadhaar implementation in MGNREGA have been challenged by researchers, citing insufficient funds as the primary reason for wage payment delays.

Supreme Court opinion:

- The government must abide by and enforce Supreme Court directions, including;
 - Restriction of mandatory Aadhaar to permissible purposes,
 - Provision of an alternative whenever Aadhaar authentication fails
 - Unconditional exemption for children.

Way Forward:

Although the Aadhaars system has undoubtedly brought transparency and efficiency to welfare programs, it is crucial to address the challenges and concerns raised by its implementation. Balancing security, accessibility, and reliability is essential to ensure that Aadhaar continues to benefit those it was intended to serve. Addressing these concerns will help optimize the effectiveness of Aadhaar in government welfare schemes while safeguarding the rights and privacy of citizens.

Source: [TH](#)

SPECIAL MARRIAGE ACT

GS II – GOVERNANCE AND JUDICIARY

- The Special Marriage Act is a law in India that allows individuals of different religions or nationalities to marry each other.
- Personal laws, such as the Muslim Marriage Act, 1954, and the Hindu Marriage Act, 1955, require either spouse to convert to the religion of the other before marriage, however couples who register under this act are not required to change their religion or follow any religious rites or rituals.
- The act is applicable for Hindus, Muslims, Sikhs, Christians, Sikhs, Jains, and Buddhists, across India.
- It was enacted in 1954 and came into effect in 1955.
- The act also provides for divorce on certain grounds and maintenance to the spouse and children.
- The Act provides for the registration of marriages, which gives legal recognition to the marriage and provides a number of legal benefits and protections to the couple, such as inheritance rights, succession rights, and social security benefits.

- It forbids polygamy and declares a marriage null and void if either party had a spouse living at the time of the marriage or if either of them is incapable of giving a valid consent to the marriage due to unsoundness of mind.
- Section 5 of the Act specifies that the parties must give written notice to the Marriage Officer of the District and that at least one of the parties must have lived in the district for at least 30 days immediately before the date of such notification.
- Section 7 of the Act allows any person to object to the marriage before the expiration of 30 days from the date of the notice's publication.

ISSUES WITH THE ACT

- In India, societal norms and prejudices often favor traditional marriages that conform to religious and caste customs. Interfaith or inter-caste marriages can face significant social stigma and resistance, which can result in pressure, discrimination, and even violence against the couples.
- The requirement to publish a notice about the intended marriage raises privacy concerns, and couples may feel uncomfortable about disclosing their personal information publicly.
- The provision in the Special Marriage Act for the publication of a marriage notice can lead to harassment and threats from family members or communities opposed to the marriage. In some cases, this can result in couples being coerced or forced into abandoning their plans.
- The 30-day notice period can cause delays in the solemnization of the marriage. This waiting period can be a source of anxiety and can deter couples from choosing to marry under the act.

The procedure for raising objections to the marriage can be misused by those who oppose the union, leading to unjustified interference in the couples' decisions.

CONCLUSION

Though marriage does not obfuscate but lays bare the caste hierarchies that embolden discrimination and segregation. But despite being a faulty institution, marriage is a legitimate legal need. Just by decriminalizing Section 377 does not ensure equal rights for the queer community.

NEED FOR POLICE REFORMS

GS II-Governance

Policing in India have colonial hangover in spite of new approaches and new legislation by states as it is based on Indian Police Act, 1861, whose main aim was to create fear and oppression among people. New model police act was framed in 2016 and even Supreme Court using A-142 Policing in India have colonial hangover in spite of new approaches and new legislation by states as it is based on Indian Police Act, 1861, whose main aim was to create fear and oppression among people. New model police act was framed in 2016 and even Supreme Court using A-142 gave a binding judgment in Prakash Singh case in 2006 but state governments are reluctant to implement them. The modern police should be sensitized as it is main face of administration.

ISSUES IN EXISTING POLICE SYSTEM

- The Indian Police system is mainly based on archaic laws such as Indian Evidence Act, 1872, thus leading to politicization and misconduct.

- Many police departments in India are understaffed, leading to excessive workloads and fatigue among police officers. This can result in delayed response times and reduced effectiveness in handling cases.
- According to Bureau of Police Research and development (BPRD) there are 25% of unfilled vacancies in police department.
- Excessive interference of political executive (given in ARC report) in the functioning of the police forces. They are placed under superintendence of executives to ensure accountability but political interfere in police work, affects investigations, which can undermine the rule of law and compromise the integrity of the police.
- Training programs for police officers may be inadequate, especially in terms of dealing with modern challenges, such as cybercrime or handling sensitive social issues. Sensitivity training regarding issues like gender, caste, and religion is often lacking, which can lead to incidents of police bias and discrimination.
- Many cases go unsolved, and the clearance rate for crimes is relatively low. The lack of modern investigative techniques, forensic capabilities, and resources can contribute to this issue. According to Bureau of Police Research (BPR) and development due to decreasing efficiency there is decrease in conviction with increasing crime rate Conviction rate in 2019 is only 65%
- The lack of transparency in police operations and accountability for misconduct can erode public trust. Establishing internal mechanisms for accountability and external oversight is crucial.

WAY FORWARD

- There is a need for making Indian police Strict and Sensitive, Modern and Mobile, Alert and Accountable, Reliable and Responsive, Tech Savvy and Trained.
- Increasing community policing makes sense because it involves police and community members working together to solve crime and crime-related issues and also improves people-police relations.
- In accordance with the Model Police Act, 2006, each state must establish an authority made up of retired High Court judges, civil society members, retired police officers, and public administrators from another state.
- Parliamentary Standing Committee advised states and Union Territories to create a road map for ensuring 33% representation of women in police. It also recommended at least one all-women police station in each district.

CONCLUSION

Police reforms are an ongoing process, and they require collaboration between government bodies, civil society, and law enforcement agencies. These reforms are essential to ensure that the police serve as a protector of the people, uphold the rule of law, and maintain public trust and confidence in the justice system.

Law Commission on e-FIR

Syllabus

- **Mains – GS 2 (Polity and Governance)**

Context: The [Law Commission](#) has recently recommended allowing the filing of online first information reports (e-FIRs) for cognisable offences to overcome difficulties in filing FIRs and improve police to public ratio.

About e-FIR:

- An e-FIR is the electronic version of a First Information Report.
 - For filing an e-FIR, the complainant does not have to visit the police station instead they can register their complaint through a **mobile app or the police's online network**.
- This initiative is being implemented partially in **Delhi, Gujarat, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, and Uttarakhand**.
 - It only works in a **non-heinous case** (theft, reporting lost items and vehicle thefts).

Advantages of e-FIRs:

- **Increased Accessibility:** In areas with security or infrastructural issues, e-FIRs offer a convenient alternative rather than visiting a police station.
- **Overcoming Reluctance:** e-FIRs can mitigate the reluctance of policemen in cases of petty offences.
- **Addressing Police-to-Public Ratio:** It would overcome the difficulties resulting from low police to public ratio.
- **Reporting crimes in real time:** e-FIR would tackle the long persisting issue of delay in registration of FIRs by reporting crime in real time.

Criticisms of e-FIRs:

- **Potential for Exaggeration:** There's a risk of complainants exaggerating claims, which can lead to legal complexities and discomfort for the accused.
 - Thus, it requires checks and balances.
- **Lack of Immediate Investigation:** E-FIRs might not be suitable for cases requiring immediate investigation, such as fatal accidents or grievous hurt incidents.
- **Infrastructure Constraints:** Not all police stations have the necessary infrastructure to handle e-FIRs efficiently.
 - There are 17,535 police stations in total, of which 628 are operating without a landline, while 285 run without wireless/mobile connection.
 - The total number of computers in 17,535 police stations is 172,168.

Recommendations by the Law Commission:

- To enable the online submission of FIRs for two specific situations:
 - **All cognizable offenses**, even when the accused is **unknown**.
 - Cognizable offenses with a **maximum punishment of three years**, even when the accused is known.
- It has been partially implemented in some states but the commission has recommended expanding the facility.
- States are **granted additional powers** to expand the list of eligible offenses for e-FIR based on the effectiveness of the system.
- Suggested amendments span various legislations, including the **Code of Criminal Procedure, 1973, Indian Evidence Act, 1872, Information Technology Act, 2000, Indian Penal Code, 1860**, and other relevant laws.
- It referred to the **Supreme Court's landmark verdict in Lalita Kumari v. State of Uttar Pradesh**, in which the court held that preliminary enquiry should be conducted in cases pertaining to matrimonial disputes, commercial offences, medical negligence and corruption, among others.

Source: [IE](#)

Comprehensive Nuclear Test Ban Treaty (CTBT)

Syllabus

- **Mains – GS 2 (International relations)**

Context: A day after indicating that Russia might revoke its ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT), President Vladimir Putin said that the country would do so to be on level terms with the United States, and not to resume nuclear testing.

About CTBT:

- The **CTBT is a multilateral treaty** that bans all nuclear explosions, whether for military or peaceful purposes.
 - It was negotiated at the **Conference on Disarmament in Geneva**.
- It has been **signed by 187 countries and ratified by 178** but cannot go into force until eight countries have signed and ratified it.
 - **China, Egypt, Iran, and Israel** have signed but not ratified it.
 - **North Korea, India and Pakistan** have not signed.
 - While **Russia ratified the agreement in 2000**, the **US is still to do so**.
- While the US signed but did not ratify the treaty, it has observed a moratorium on nuclear weapon test explosions since 1992 that it has no plans to abandon.
- When the **United Nations General Assembly (UNGA)** adopted the CTBT in September 1996, 2048 nuclear explosions were already conducted worldwide.
 - 18 years later, the number of explosions has further increased to 2055.
 - In this regard, the CTBT has an important role in ensuring a world where nuclear weapons tests are barred and thus constrain the development of new nuclear weapons and new nuclear weapon countries.

Implications of Russian Move:

- **Global Disarmament:** Since the CTBT, 10 nuclear tests have taken place.
 - India conducted two in 1998, Pakistan also two in 1998, and North Korea conducted tests in 2006, 2009, 2013, 2016 (twice) and 2017, according to the United Nations.
 - It would be a big setback to the Nuclear disarmament movement.
- **Nuclear Arms Race:** This move would enable Russia to build and deploy more nuclear weapons targeting its adversaries without the treaty's constraints.
 - Both sides could get sucked into a dangerous arms race.
- **Russia-Ukraine Crisis:** The missile attacks against each other by both Russia and Ukraine have also led to a growing escalation of mutual suspicion.
 - The present Russian decision has only aggravated the crisis.
- **Undermining Future Agreements:** Arms control has been a progression from one treaty to the next. If Russia revokes its ratification, it will leave the world without a common starting point for future efforts.
 - The **Treaty on Prohibition of Nuclear Weapons (TPNW)** did not find support from any of the P-5 countries.
- **Russia-West Relations:** The Russian decision can be described as symbolic and strategic in nature. It wants to pressurize the West by sending an ambiguous message strategically.
 - Russia has tried not to appear aggressive and has attempted to put all the blame on the US this will further erode Russia and West ties.

- **Global Politics and Security:** Taking a cue from the present stand-off between Russia and the United States over the current nuclear question, many countries like **North Korea, Pakistan, Turkey, Iran, and China** may go for further proliferation of nuclear weapons without any scrutiny.

India's view on nuclear disarmament:

- **Complete Disarmament:** India has consistently advocated global nuclear disarmament since the concept's inception in the United Nations.
- **Two-Front Nuclear War:** India, faced with two nuclear neighbours (Pakistan and China) with one declaring its nuclear arsenal as India-specific, reluctantly had to become a nuclear weapon state.
- **Universal Non-discriminatory and verifiable Treaty:** India remains committed to negotiating a universal, non-discriminatory and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, one that considers India's national security interests.
- **Delinking Disarmament and Non-Proliferation:** In 1965, India was a member of the eighteen nation disarmament committee (ENDC) that advocated for delinking disarmament and non-proliferation.
 - India opposed the signing of the **NPT (treaty of Non-Proliferation of Nuclear Weapons)** which it views as discriminatory (dividing the world into Nukes haves and haves not).
 - In 1988, **India Proposed a Comprehensive Proposal** for complete Universal **disarmament (Rajiv Gandhi Action Plan)** - to the UN General Assembly Special Session on Disarmament.

Way Forward:

India supports the commencement of negotiations on a comprehensive **Nuclear Weapons Convention in the Conference on Disarmament**, which is the world's single multilateral disarmament negotiating forum working on the basis of consensus. Considering the present pessimistic environment, the **Russian revocation of the Treaty** may not seem shocking or startling.

Source: [IE](#)

BHUTAN CHINA BORDER TALKS

Context: In Beijing, the 25th round of Bhutan-China Border Talks culminated with the signing of a significant Cooperation Agreement. This historic agreement reflects the progress made in their quest for border resolution, carrying forward the 3-Step Roadmap initiated in 2021. Amid the backdrop of a seven-year gap in talks, these recent developments bear immense significance.



OVERVIEW OF BOUNDARY DISPUTE BETWEEN CHINA AND BHUTAN

- The boundary dispute between Bhutan and China has its roots in historical claims and traditions. Both countries have historically maintained different perceptions of their border in the Doklam Plateau.
 - The dispute has its origins in the 19th century when British India and China signed the 1890 Convention, known as the Sikkim-Tibet Convention. This agreement delineated the border between Sikkim (then a British protectorate) and Tibet (which was under Chinese influence), passing through the Doklam Plateau.
- Bhutan claims the Doklam Plateau as part of its territory.

- China, on the other hand, claims that the Doklam Plateau falls within its territory based on its interpretation of the 1890 Convention.
- The dispute gained international attention in 2017 when a border standoff occurred between Indian and Chinese troops in the Doklam area. This standoff was triggered when Chinese troops attempted to construct a road in the region.
- India intervened in support of Bhutan's territorial claims, as it has a special relationship with Bhutan and is responsible for its defense and foreign affairs.

BHUTAN- CHINA BORDER TALKS

- Bhutan and the Tibetan Autonomous Region share an extensive contiguous border, spanning approximately 470 km. prior to 2016, the two nations engaged in 24 rounds of talks to address border disputes.
- Talks had been stalled due to the Doklam Standoff in 2017 and the subsequent COVID-19 pandemic. However, this interlude witnessed discussions at other levels, especially after China raised concerns about a border dispute to Bhutan's east.
- After a prolonged pause in boundary talks lasting seven years, the resumption of discussions signals substantial headway.
- The 3-Step roadmap, established through a MoU in 2021 and facilitated by the Joint Technical Team (JTT), aims to delineate the Bhutanese and Chinese territories conclusively. Despite the absence of diplomatic ties, Bhutan and China seek to formalize their border.
- Steps in the Roadmap
 - Agreement on the border "on the table."
 - On-ground inspections of the border.
- Formal demarcation of the boundary.

INDIA'S CONCERNS

- **India's Security Concerns:** The India-Bhutan-China border issue is directly linked to India's national security. India is concerned about Chinese encroachments in the region, which could alter the strategic balance and threaten Indian security interests.
- **Strategic Importance:** Doklam is strategically significant for India as it overlooks the narrow Siliguri Corridor, also known as the "Chicken's Neck." The corridor is a narrow strip of land that connects mainland India with the northeastern states. Any Chinese presence in Doklam could potentially pose a security threat to India's northeastern region.
- **Strained Sino-Indian Relations:** In the context of deteriorating relations between India and China since the 2020 Line of Actual Control standoff, any warming of ties between China and one of India's closest neighbors` raises concerns in New Delhi.
- **Implications for the Region:** The outcome of the border dispute between Bhutan and China has broader regional implications, especially in the context of India-China relations. A peaceful resolution is in the interest of stability and peace in the region

CONCLUSION

The Bhutan-China boundary dispute is a complex issue with historical, political, and strategic implications. It remains unresolved, and the parties involved continue to engage in diplomatic negotiations to find a mutually acceptable solution. The resolution of this dispute is important not only for Bhutan and China but also for the broader regional stability in South Asia.

India-Israel Relation

Syllabus

- **Mains – GS 2 (International relations)**

Context: Recently, Hamas, the militant group ruling the Gaza Strip, mounted one of the most audacious attacks on Israel known as “**Operation ‘Al-Aqsa Storm’**”.

- In retaliation, Israel has formally declared war on Hamas under “**Operation Iron Sword’**”.
- The Indian PM expressed outrage, referring to the event as a terrorist attack, and voiced solidarity with Israel.

History of India's Position on the Israel-Palestine Conflict:

- **India's Initial Rejection of the Two-Nation Solution and Support for the Palestinian Cause:** In the wake of India's independence in 1947, its early political stance on Israel was rooted in the rejection of the two-nation solution and unwavering support for the Palestinian cause.
- **India's Votes Against Israel at the United Nations:** India's position regarding Palestine was also shaped by the broader consensus in the Arab world, the Non-Aligned Movement, and the United Nations.
 - when Israel applied for admission to the United Nations, India once again voted against its inclusion.
- **Recognition of Israel as a Nation:** Despite its early stance against Israel, India eventually recognized Israel as a sovereign nation on **September 17, 1950**, following the footsteps of two **Muslim-majority countries, Turkey and Iran**.
- **Engagement with Palestinian Leadership Under Yasser Arafat:** In the late 1960s and early 1970s, the **Palestine Liberation Organisation (PLO)** emerged as the principal representative of the Palestinian people, under the leadership of Yasser Arafat.
 - During this period, India actively engaged with the largest political faction within the PLO, Al Fatah.
- **Recognition of PLO as the Legitimate Representation of Palestinian People:** On January 10, 1975, India took a significant diplomatic step by officially recognizing the PLO as the sole and legitimate representative of the Palestinian people.
 - This recognition culminated in India permitting the PLO to establish an independent office in New Delhi.
 - Remarkably, India, despite being one of the last non-Muslim states to recognize Israel, became the first non-Arab state to formally acknowledge the legitimacy of the PLO.
- **Strong Solidarity for Palestine Struggle at NAM Summit in Delhi:** The relationship between India and Palestine further strengthened when the NAM summit took place in India in 1983 with a strong statement of solidarity for Palestine.

Present India- Israel Relations

- **Economic and trade:** Bilateral merchandise trade surged from USD 200 million in 1992 to USD 6.35 billion (excluding defense) by 2022.
 - India emerged as **Israel's third-largest** trade partner in Asia and seventh globally, with trade diversifying into **pharmaceuticals, agriculture, IT, telecom, and homeland security**.
 - Israeli companies have facilitated technology transfer to India, particularly in **renewable energy, telecom, and water technologies**.
- **Defense Cooperation:** India imports crucial defense technologies from Israel, with regular exchanges between armed forces.
 - Security cooperation includes a **Joint Working Group on Counter-Terrorism**.

- India uses Israeli defense systems such as **Phalcon AWACS, Heron drones, and Barak anti-missile defense systems.**
- **Agricultural Cooperation:** A three-year joint work program was signed in 2021 to enhance agricultural cooperation, focusing on Centers of Excellence, value chains, and private investment.
 - Israel's expertise and technologies have benefitted India in horticulture, irrigation, and dairy farming.
- **Science and Technology:** The Joint Committee on Science and Technology, established in 1993, fosters collaboration in research and development.
 - The India-Israel Industrial R&D and Technological Innovation Fund (I4F) supports joint industrial projects in specific sectors.
 - Energy cooperation includes India's interest in exploring gas fields off Israel's coast.
- **I2U2 Grouping:** It stands for **India, Israel, the UAE, and the US.**
 - It was formerly known as the '**International Forum for Economic Cooperation**' and is also referred to as the '**West Asian Quad.**'
 - It aims to strengthen economic partnerships, identify areas of cooperation, and encourage joint investments six key sectors: **water, energy, transportation, space, health, and food security.**
- **Indian diaspora in Israel:** There are approximately 85,000 Jews of Indian-origin in Israel, who are Israeli passport holders.
 - There are approximately 900 Indian students studying in Israel, mostly at the doctoral and post-doctoral levels.

Challenges in the relations:

- **Trade:** Since 2010, the two countries have been talking about a free-trade deal for goods and services.
 - This should make it easier to invest and do business with each other.
 - To tap into the untapped potential, there is a need to increase bilateral trade and broaden the types of economic partnership.
- **Israel and the Arab World:** India's close relationships with the Arab world have always made it hard for the country to publicly work with Israel.
- **Approach towards China:** India and Israel treat China in different ways.
 - India is worried about China's rise, but China is Israel's biggest trading partner in Asia and the two countries have strong links in science and investment.
- **De-Hyphenating Israel-Palestine:** The "**two-state solution**" and the fact that India voted in favour of the resolution to raise the Palestinian flag at the United Nations and signed on to BRICS declarations "**opposing the continuous Israeli settlement activities in the Occupied Territories**" show that India's support for Palestinians hasn't changed.
 - However, during the Indian Prime Minister's visit to Israel in July 2017, the media reported that India was "**dehyphenating**" its relationship with Israel.
- **Pegasus issue:** Pegasus is a spyware developed by NSO Group, an Israeli surveillance firm, that helps spies hack into phones.
 - A case was filed in the Supreme Court accusing the government for indiscriminate spying on more than 1000 phone numbers.

- New York Times reported that India bought Israeli Pegasus spyware as part of weapons deal in 2017.

Way Forward:

India's evolving stance on the Israel-Palestine conflict, coupled with its growing relations with both Israel and Palestine, demonstrates its commitment to contributing to a peaceful resolution. As a nation with ties to multiple stakeholders in the region, India has a crucial role to play in promoting stability and cooperation in the Middle East.

Source: [Indian Express](#)

VIENNA CONVECTION ON DIPLOMATS

The "Vienna Convention on Diplomats," is an international treaty that was adopted by 61 countries on April 18, 1961. This convention is a fundamental document in international law and governs the conduct of diplomatic relations between independent states. It was drafted during the United Nations Conference on Diplomatic Intercourse and Immunities, held in Vienna, Austria. It is considered a cornerstone of modern diplomatic law and practice.

KEY PROVISIONS**Diplomatic Immunity (Articles 29 to 36)**

- Diplomats and their families are granted immunity from the jurisdiction of the host country's legal system for their official actions.
- Extends to criminal and civil matters and ensures that diplomats cannot be prosecuted or sued in the host country's courts.

Inviolability of Diplomatic Premises (Articles 22 to 27)

- Diplomatic premises, such as embassies and consulates, are considered inviolable.
- They cannot be entered or searched by the host country's authorities without the permission of the sending state.

Non-Interference (Article 41)

- Diplomatic agents are expected not to interfere in the internal affairs of the host country.
- This principle promotes peaceful coexistence and respectful relations between states.

Protection of Diplomatic Missions (Articles 22 to 27)

- Host country is responsible for ensuring the security and protection of diplomatic missions and their staff.
- Includes safeguarding the physical premises and preventing any intrusion or damage.

Termination of Diplomatic Relations (Articles 45 to 50)

- Outlines procedures for the termination of diplomatic relations between states.
- Includes orderly withdrawal of diplomatic personnel and the closure of diplomatic missions.

Article 11.1

- It deals with the size of international missions within other countries.
- In the absence of a specific agreement as to the size of the mission, the receiving State may require that the size of a mission be kept within limits considered to be reasonable and normal.

NEED OF VIENNA CONVECTION

- **Establishing a Standardized Framework:** The convention provides a universally accepted and standardized framework for diplomatic relations between states. This common set of rules and principles helps to avoid misunderstandings and conflicts related to diplomatic conduct.

- **Promoting Diplomatic Relations:** By establishing a clear legal framework for diplomatic relations, the convention encourages states to engage in diplomatic relationships. This, in turn, contributes to open channels of communication and peaceful means of dispute resolution.
- **Protection of Diplomats:** It ensures that diplomats can perform their duties without fear of harassment, arrest, or harm. This protection is essential for diplomats to represent their countries effectively and safely.
- **Promoting Diplomatic Immunity:** It allows diplomats to carry out their responsibilities without being subject to the jurisdiction of the host country's legal system, which could lead to politically motivated arrests or interference in their work.
- **Respect for the Principle of Non-Interference:** The Vienna Convention reinforces the principle of non-interference in the internal affairs of the host country. This principle is essential for maintaining peaceful relations and respecting the sovereignty of states.
- **Preventing Diplomatic Crises:** Clear rules and guidelines help prevent diplomatic incidents that could lead to crises. The convention stipulates how diplomatic missions and agents should conduct themselves, minimizing the potential for misunderstandings and conflicts.

Conclusion:

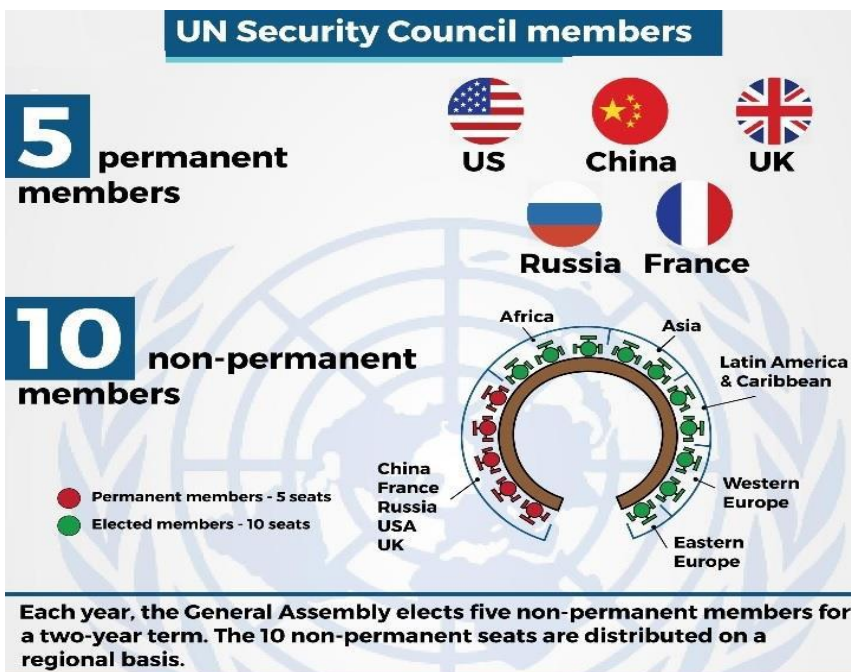
The Vienna Convention on Diplomatic Relations has been widely adopted by countries around the world and is considered a cornerstone of diplomatic law and practice. It establishes a framework that helps maintain peaceful relations among nations and ensures the functioning of diplomatic missions in a manner that respects the sovereignty and dignity of both sending and receiving states. Violations of the convention can have significant diplomatic and legal consequences.

United Nations Security Council (UNSC) reforms

Syllabus

- **Mains – GS 2 (International relations)**

Context: The longstanding debate on fundamental reforms at the United Nations (UN) has resurfaced once again, more than thirty years after it first began.



About United Nations Security Council (UNSC):

- It is one of the UN’s six main organs and is aimed at maintaining international peace and security.
- **EST:** 1945
- **HQ:** New York City.
- **Membership:** The Council is composed of 15 Members including 10 non-permanent members.
- **P5 with veto power:** China, France, Russia, the United Kingdom and the United States.

UNSC elections:

- Each year the **General Assembly elects five non-permanent members** (out of 10 in total) for a two-year term.
- The 10 non-permanent seats are distributed on a regional basis as follows:
 - Five for African and Asian States.
 - One for the Eastern European States.
 - Two for the Latin American and Caribbean States;
 - Two for Western European and other States
- To be elected to the Council, candidate countries need a **two-thirds majority of ballots of the Member States** that are present and voting in the Assembly.
- The UNSC elections were traditionally held in the **General Assembly hall with each of the 193 member states** casting its vote in a secret ballot.

Need for United Nations Reforms:

- **Inadequate Council Representation:** Presently, with 193 UN member-states, only 15 Council members exist, accounting for less than 8%.
 - Consequently, a significant number of nations do not feel fairly represented within the Council.
- **Imbalanced Powers and privileges:** The current privilege enjoyed by the five permanent members and based on historical precedence is politically untenable.
 - Europe, comprising just 5% of the global population, controls 33% of Council seats, not including Russia, another European power.
- **Financial Disparities:** Some countries contribute more financially to the UN than four of the five permanent members.
 - For example, **Japan and Germany** have consistently ranked as the second and third largest UN budget contributors.
- **Unresolved conflicts:** Conflicts in regions like **Sudan, Syria, Afghanistan, Palestine and Myanmar** often remain unaddressed, allowing certain countries and non-state actors to exploit these situations economically.
- **Failure in basic functions:** The Security Council struggles to fulfill its fundamental role, especially when a permanent member attacks its neighbour.
 - For example, when **Russia attacked Ukraine** in February 2022, its veto power obstructed UNSC resolutions addressing the situation.
- **Denied Opportunities for Contributions and Representation:** Prominent nations like India, with significant population, economic influence, and substantial contributions to the UN, find their opportunities curtailed.
 - Despite their active roles in shaping global affairs, these states remain underrepresented, highlighting the pressing need for reforms within the UN framework.

Way Forward: Suggestive measures

- **Expansion of UNSC:** The changing needs of global governance for peace and security require significant reforms in the UNSC, including expanding its permanent and non-permanent seats to better address the complex and evolving challenges to international peace and security.
- **Democratization:** The power imbalance between the P5 and other countries in the UNSC needs to be addressed urgently to make the council more democratic and increase its legitimacy in governing international peace, security and order.

- **Equitable Representation:** Equitable representation of all the regions in the UNSC is critical to decentralizing its governing power and authority over nations.
 - The decentralization of the UNSC's decision-making processes will enable its transformation to a more representative, participatory body.
- **India and UNSC:** India as the current one of the non-permanent members of the UNSC can start by drafting a resolution containing a comprehensive set of proposals for reforming the UNSC.
 - India urged for UNSC reform hosting a meeting of two separate groupings **G-4** and **L-69** in New York on the sidelines of the UN General Assembly in September 2022.

Source: [TH](#)

Paper III

Social Bonds: A march towards sustainability bond framework

Syllabus

- **Mains – GS 3 (Economy)**

Context: The [National Bank for Agriculture and Rural Development](#) (NABARD) has issued India's first 'AAA' rated Indian Rupee-denominated Social Bonds.

About Social bonds:

- Social bonds, also known as **social impact bonds (SIB)**, are the type of bond where the bond issuer is gathering funds for a project that had some socially beneficial implications.
- Similar to any other bond, social bonds imply that the bond issuer owes a debt to the bondholder.
- The Pimpri Chinchwad Municipal Corporation (PCMC) in Maharashtra's Pune and United Nations Development Programme (UNDP) in 2020 co-created **India's first Social Impact Bond (SIB)**.

Sustainability Bond Framework

- NABARD recently announced a Sustainability Bond Framework which seeks to finance and refinance new or existing eligible green and social projects.
- **Eligible social projects:** Includes affordable basic infrastructure, access to essential services, affordable housing, employment generation, food security, socioeconomic advancement, and empowerment.
 - Projects that promise energy efficiency including **green buildings, energy storage, and smart grids**.

Key features of Social Bonds:

- **Designed for social cause:** These bonds are raised to improving healthcare access, advancing education, providing affordable housing, alleviating poverty, and promoting environmental sustainability.
 - The defining characteristic of social bonds is their commitment to generating **tangible and positive societal outcomes**.
- **Broad spectrum of issuers:** They are not limited to government entities but can be issued by a diverse array of organizations.
 - This includes governments at various levels. international multilateral organizations, financial institutions and corporations.
 - This diversity of issuers underscores a collective commitment to addressing social issues and leveraging financial markets to do so.

- **Certification and reporting:** The certification ensures that the bond's proceeds are used exclusively for the intended social projects and adhere to predefined social goals.
 - Issuers are obligated to provide regular and transparent reporting on the progress and impact of the projects financed.
 - This reporting helps investors, regulators, and the public assess whether the social bonds are fulfilling their intended purpose.

Challenges associated with the social bonds:

- **Complexity of identifying projects:** Identifying suitable social projects that can effectively absorb the capital raised through social bonds can be a complex task.
 - This challenge arises from the need to align the projects with the specific criteria and goals of social bonds.
 - Therefore, careful project selection and prioritization are critical to the success of social bond issuances.
- **Measuring Impact:** As it generate tangible and positive social outcomes, measuring the social impact of projects can be intricate, as it often involves assessing complex and multifaceted social variables.
 - Robust monitoring and evaluation systems are necessary to track progress and demonstrate the impact of financed projects.
- **Lack of awareness and education:** To foster broader adoption of social bonds, there is a need to increase awareness among both investors and issuers about their benefits and mechanisms.
 - Many potential stakeholders may not fully understand the unique attributes of social bonds, including their potential for positive social impact. Education campaigns and targeted outreach efforts can help bridge this knowledge gap and encourage more participation in the market.

Way Forward:

Therefore, issuance of social bonds is a significant development in the Indian financial market, providing an avenue for financing projects that have a positive impact on society and addressing social issues. The strong investor response reflects growing interest in socially responsible investing and sustainable finance in India.

Source: [THB](#)

India's Creative Economic Industries: Opportunities and Challenges

Syllabus

- **Mains – GS 3 (Economy)**

Context: The creative industries encompass a diverse range of economic activities rooted in original ideas and artistic expression.

About Creative Economy:

- It is an evolving concept which is building on the **interplay between human creativity and ideas and intellectual property, knowledge and technology.**
- The creative industries are a group of economic activities that are based on original ideas.
 - They include businesses that are centred around creativity.
- These industries include design, music, publishing, architecture, film, crafts, visual arts, fashion, literature, computer games, and more.

- The Nataraja, a **statue of Hindu lord Shiva** as the cosmic dancer, installed next to 'Bharat Mandapam', at the venue of the G20 Summit is a prime examples of creative economy.

Benefits of Creative Economic Industries:

- **Employment generation:** Creative industries provide employment opportunities for a significant portion of the population, especially talented individuals.
 - According to [Asian Development Bank report 2023](#), these industries contribute nearly 8% of India's total employment.
- **Spillover Effects on the Wider Economy:** Creative industries drive innovation, fostering creativity, experimentation, and collaboration across various sectors and disciplines.
 - These industries positively impact sectors like tourism, education, and urban development.
- **Tourism Boost:** Creative industries attract tourists who engage in cultural experiences, contributing significantly to India's tourism industry.
- **Education and skills development:** Creative industries play a pivotal role in providing learning opportunities, enhancing cultural awareness, and nurturing talent.
- **Urban economic growth:** Creative industries revitalize urban areas by creating vibrant cultural hubs, theatre's, galleries, and entertainment districts.
- **Promotion of India's Heritage and Resources:** Creative industries showcase India's rich culture, history, and traditions, leveraging abundant natural and human resources.
- **Global branding and soft power:** Exporting creative goods and services enhances India's brand value and soft power, strengthening diplomatic and cultural ties.

Challenges associated with creative economy:

- **Common issues:** Indian artists and artisans face challenges that are related to economic sustainability, market access, and the preservation of traditional art forms in a rapidly changing society.
- **Need of support and finances:** Government support, cultural institutions, and initiatives provide financial assistance, training programmes, and opportunities for artists to exhibit their work.
 - However, more efforts are needed to promote contemporary artists as brands and ensure equal representation and financial assistance.
- **Limited reach of sponsored platforms:** There are challenges in the selection of artists for financial assistance in organising cultural events.
- **Lack of transparency** in the selection process creates inequality in representation.
 - So, talented artists, particularly those based outside the city, are unable to gain from sponsored platforms.
- **Lack of promoting platforms:** Unlike in other countries, there are no serious efforts by private or public institutions to promote contemporary artists as brands.
- **Crime in the art sector:** Crime in the art world includes art theft, copyright infringement, forgery, fraud, and illicit trafficking.
 - There is no institutional infrastructure, expertise and technology to verify the original artwork.

Govt Initiatives aimed at promoting creative industries:

- **National Film Development Corporation (NFDC):** NFDC is a government enterprise under the Ministry of Information and Broadcasting.

- It focuses on planning, promoting, and efficiently developing the Indian film industry.
- **National Institute of Design (NID):** NID operates autonomously under the Ministry of Commerce and Industry.
 - It provides education, research, consultancy, and outreach services across various design domains.
- **Scheme for Promotion of Culture of Science (SPoCS):** SPoCS, under the Ministry of Culture, encourages a culture of science, technology, and innovation.
 - It achieves this through science festivals, exhibitions, competitions, workshops, and camps, primarily targeting the youth.
- **Scheme for Promotion of Indian Classical Music and Dance (SPIC MACAY):** SPIC MACAY is a voluntary movement that arranges programs covering classical music, dance, folk arts, crafts, yoga, meditation, and cinema.
- **India's Culture Working Group (CWG)** is to increase and support the growth of cultural and creative industries and the creative economy
 - It is aimed at promoting job creation, innovation, inclusiveness, and improving the status of cultural practitioners.

Way Forward:

India's creative economy holds immense potential for job creation, economic growth, and cultural promotion. However, addressing the challenges faced by creative industries and implementing strategic initiatives are essential to fully unlock this potential and establish India as a global creative powerhouse.

Source: [HT](#)

Fixing the Rot in the Cooperative Sector

Syllabus

- **Mains – GS 3 (Economy)**

Context: The [Enforcement Directorate \(ED\)](#) investigation was recently constituted citing **financial irregularities** in the Karuvannur Service Cooperative Bank of Kerala.

About Cooperative Societies:

- According to the **International Cooperative Alliance (ICA)**, cooperatives are people-centred enterprises jointly owned and democratically controlled by and for their members to realise their common economic, social and cultural needs and aspirations.
- The **Union Ministry of Cooperation** was formed in 2021, its mandate was looked after by the **Ministry of Agriculture** before.

Constitutional provisions related to cooperatives:

- **The 97th Constitutional Amendment Act 2011** established the right to form cooperative societies as a **fundamental right under Article 19**.
- It included a new **Directive Principle of State Policy** on the Promotion of Cooperative Societies under **Article 43-B**.
- It added a new **Part IX-B** to the Constitution titled **“The Co-operative Societies”** from articles 243-ZH to 243-ZT.
- It authorizes the Parliament to establish relevant laws in the case of **multi-state cooperative societies (MSCS)** and state legislatures in the case of other cooperative **societies**.

Status of cooperatives in India:

- Currently, there are about 10 lakh cooperatives, of which 1.05 lakh are financial cooperatives.
- Among the **financial co-operatives**, rural co-operatives have a three-tier system with around 1.02 lakh primary **agricultural cooperative societies (PACS)**;
 - 351 District Central Cooperative Banks (DCCBs),
 - 34 State Cooperative Banks (SCBs),
 - 616 rural cooperatives for long-term lending.
- India has 1,514 primary urban cooperative banks (UCBs), of which, 52 are scheduled and the rest unscheduled, some are multi-State UCBs.

Advantages of cooperative societies:

- **Easy establishment:** Any ten members who have acquired the majority can form a cooperative society with few legal formalities.
- **Transparency and Equality:** A cooperative society is based on the principle of 'one man, one vote'.
 - All members have equal rights in handling the internal affairs.
 - The surplus generated by these societies is dispensed equally among the members.
- **Support agriculture and allied activities:** Cooperative societies have supported the government's effort to improve agricultural production.
 - They act as a bridge between the government and farmers.
 - For example, the government disburses **High-Yielding Variety (HYV)** seeds and fertilizers via Cooperatives.
- **Social Benefits:** Cooperative societies have played a significant role in modulating social customs and controlling irrelevant expenses.
 - The profits reaped by the cooperatives can be used for facilitating fundamental amenities of the society.
- **Limited Liability:** The member's liability in a cooperative society is confined to the extent of their capital contribution.
- **Access to Credit:** Cooperative societies have helped in reducing the influencing of private money lenders in rural areas.
 - Cooperatives facilitate credit at the nominal interest rate.

Challenges associated with cooperative sector in India:

- **No accountability and transparency:** The government gave too many benefits to cooperatives, but then there was no further accountability which led to these cooperatives becoming more and more lethargic.
 - Besides as there was no competition, they became more and more costly they were not at all efficient and the worst part was that the government allowed them to function like this and pass on the burden of costs to consumers.
- **Vested interest of some people:** A lot of times people who are in position in control of cooperatives are actually people who have joined cooperatives for personal gains.
- **Lack of coordination:** Generally what happens in cooperatives is that different cooperatives at different level don't coordinate this makes the work of cooperatives difficult.
- **The Internal free rider problem:** New members who provide very little capital enjoy the same benefits as long-standing or founding members who have major investments in the cooperative

- New members get a “free ride” on the investments and other efforts of existing members, thereby diluting the returns to existing members.
- **No balanced growth:** The cooperatives in northeast areas and in areas like West Bengal, Bihar, Orissa are not as well developed as the ones in Maharashtra and the ones in Gujarat.
- **Political Interference:** Frequent political interference is the ruining administration of the sector.
 - This is the biggest problem faced by Sugar cooperatives in Maharashtra.
- **Mismanagement:** A hugely large membership turns out to be mismanaged unless some secure methods are employed to manage such co-operatives.
 - In the elections to the governing bodies, money became such a powerful tool that the top posts of chairman and vice-chairman usually went to the richest farmers who manipulated the organization for their benefits.
- **Lack of awareness and restricted coverage:** People are not well informed about the objectives of the Movement, rules and regulations of co-operative institutions.
 - Most of these societies are confined to a few members and their operations extended to only one or two villages.

Way Forward:

Co-operatives have great potential to rejuvenate growth, formalise the economy, and reduce inequality besides improving the standard of living of the poor in the rural areas. Provision of adequate financial and technical assistance can enable them to address rural challenges and contribute to India's growth story. The government has to fix responsibility for the scam and ensure that the culprits are brought to book regardless of their political affiliation.

Source: [TH](#)

Glacial Lake Outburst Flood (GLOF)

Syllabus

- **Mains – GS 1 (Geography) and GS 3 (Disaster management)**

Context: Flash floods occurred in north Sikkim after the South Lhonak Lake burst due to incessant rains.

- For years, numerous studies highlighted the lake's rapidly growing size and marked it as susceptible to glacial lake outburst flood.

About Glacial Lake Outburst Flood (GLOF):

- A glacial lake outburst flood (GLOF) is a **type of catastrophic flood** that occurs when the dam containing a glacial lake fails, releasing a large volume of water.
- This type of flood is typically caused by rapid melting of glaciers or the buildup of water in the lake due to heavy precipitation or the inflow of meltwater.
- In February 2021, **Chamoli district in Uttarakhand** witnessed flash floods which are suspected to have been caused by GLOFs.

Source: [HT](#)

Causes behind GLOFs:

- **Structural failure:** When glaciers start to melt, they can create glacial lakes. The water in these lakes can put pressure on the natural dam that holds the water in, causing it to fail.

IGNORED RED FLAGS TRIGGERED FLASH FLOODS IN SIKKIM

A look at what we know about Wednesday's tragedy.



WHAT IS A GLOF?

A glacial lake outburst flood, or GLOF, is when there's a sudden flow of water from a glacier-dammed lake (a lake created after a glacier retreats). The outer edges of the dam are formed by what is known as a moraine – the material/rocks left behind by the retreating glacier. During a GLOF, water either breaches the moraine by overflowing, or a part of it collapses.

WHAT HAPPENED?

At around 1am on Wednesday, a GLOF was reported in South Lhonak Lake, which led to a hydel project dam getting washed away, triggering flash flood down the stream in the Teesta River basin. A barrage of boulders, debris and water flowing down meant a sudden increase in water level which tore through at least one critical dam, and destroying homes, public infra, etc.

THE DESTRUCTION

MANGAN (NORTH SIKKIM)

- Chungthang, NHPC dam and bridge washed away
- Bridges washed away at Minshithang and Zema among other places
- Drinking water supply lines totally damaged

GANGTOK DISTRICT

- 3 bodies recovered at Golitar
- 4 relief camps set up
- 25 people rescued by SDRF
- NHPC dam control room damaged
- Drinking water lines and sewage plant at Singtam damaged

PAKYONG DISTRICT

- 4 deaths reported
- 7 reported missing at Baghey Khola, 3 at Majitar
- 17 have been wounded
- Drinking water supply lines and sewage plant at Rangpo damaged

NAMCHI DISTRICT

- 2 labourers swept in Mamring
- Sewage plant at Melli damaged

SO, WHAT CAUSED IT?

So far, it's not entirely clear yet what may have triggered the GLOF because the region is too remote. Experts, however, have some theories:

THEORY #1: CAUSED BY RAIN

Primarily, experts suspect vigorous monsoon rainfall may have been the trigger. There is no rainfall data from IMD for this remote region as IMD does not have automatic weather stations there. Experts say it appears that heavy rainfall caused water to rise above the moraine, or led to a partial collapse of the moraine, which triggered the flashflood.

THEORY #2: LANDSLIDE/AVALANCHE

Another theory is that a portion of the glacier collapsed into the lake or a landslide brought soil into the lake, which led to the water level suddenly rising above the moraine. This, then, caused the sudden flooding downstream.

THEORY #3: ROLE OF EARTHQUAKE

Some scientists have also suggested that the earthquake that hit Nepal and northern India on Tuesday may have triggered the GLOF.

- **Earthquakes:** Earthquakes can cause sudden changes in the shape and stability of a glacial lake and its dam, leading to a GLOF.
- **Climate change:** Rising temperatures and increased rainfall can lead to more meltwater and therefore more glacial lakes, as well as increase the risk of GLOFs.
- **Human activities:** Human activities, such as construction or mining, can cause changes in the area around a glacial lake that can lead to a GLOF.

Impact:

- GLOF has the potential to catastrophically threaten people's lives, livelihoods and regional infrastructure.

Old Study Warned About Threat of Lake Bursting in Sikkim:

- A study by an international team of researchers had warned two year ago that the **South Lhonak lake in Sikkim** may burst in the future and significantly impact the downstream region.
- The 2021 study, published in the journal **Geomorphology**, highlighted that South Lhonak Lake had witnessed a significant growth in the past decades due to glacial retreat, thereby increasing its chances of glacial lake outburst floods (GLOF).

Key measures to tackle GLOF:

- The **National Disaster Management Authority (NDMA)** to tackle Glacial Bursts: Some of the key measures recommended by the NDMA include:
- **Risk assessment:** Conducting regular assessments of the risk posed by GLOFs in order to identify vulnerable areas and communities, and to prioritize areas for intervention.

- **Early warning systems:** Establishing early warning systems that can detect potential GLOFs and provide timely alerts to communities and authorities.
- **Disaster management plans:** Developing and implementing disaster management plans that outline the measures to be taken in the event of a GLOF, including evacuation plans, rescue and relief operations, and post-disaster rehabilitation.
- **Capacity building:** Building the capacity of local communities, authorities, and emergency responders to respond to GLOFs and other natural disasters, through training and awareness programs.
- **Risk reduction measures:** Implementing risk reduction measures, such as glacial lake stabilization to mitigate the risk posed by GLOFs.

Way Forward:

The series of disasters that occurred in Sikkim after the **triggering of GLOF of South Lhonak Lake** again proves that cascading hazards are becoming frequent due to climate change and human activities. It also reinforced that Himalayan regions are more susceptible to such disasters.

Addressing these disasters requires an “integrated disaster management approach” that considers the connection between hazards and specific incidents to formulate effective risk-mitigation plans.

Source: [Indian Express](#)

AI IN DEFENCE SECTOR

Artificial Intelligence (AI) is playing an increasingly significant role in the defense sector, transforming the way military operations are conducted, and improving decision-making, efficiency, and safety. Here are some key areas where AI is being utilized in the defense sector:

- **Autonomous Systems:** AI is used to develop autonomous drones, ground vehicles, and maritime vessels for tasks like surveillance, reconnaissance, and logistics. These systems can operate in hazardous environments or carry out repetitive tasks, reducing human risk.
- **Predictive Maintenance:** AI is employed to predict equipment failures and conduct preventive maintenance, ensuring that military vehicles and equipment remain operational and reducing downtime.
- **Cybersecurity:** AI-powered cyber security tools help defend against cyber threats and attacks. These systems can identify and respond to threats in real-time, protecting sensitive military data and communication.
- **Data Analysis and Intelligence:** AI is used for data analysis to sift through vast amounts of information, from satellite imagery to communications intercepts, and extract valuable intelligence. AI can be used to process unused or underused data to provide more actionable intelligence for the Indian armed forces. It will enhance the Intelligence, Surveillance, and Reconnaissance (ISR) capabilities.
- **Simulation and Training:** AI-driven simulations provide realistic training environments for soldiers, pilots, and commanders. These simulations can help personnel develop critical skills in a safe and controlled setting.
- **Biometrics and Identity Verification:** AI can be used for biometric identification and verification, helping ensure that only authorized personnel have access to sensitive areas or information.
- **Language Translation and Cross-Cultural Communication:** AI-powered translation and communication tools help military personnel interact with foreign populations and allies, aiding in diplomacy and peacekeeping efforts.

ADVANTAGES OF AI IN DEFENCE SECTOR

- **Safety** - Reducing human casualties and risks
- **Adaptability** - It can be made adaptable to new threats by constant learning.
- **Improved decision-making** – More precise, faster situation assessments and analyses.
- **Emotions** - It offsets emotions and prejudices

CHALLENGES OF USING AI IN DEFENCE SECTOR

- Prejudices – Prejudices can be inherent through biased algorithms
- High cost of Implementation - Given the complexity of engineering in building AI technology, these equipment's are highly expensive.
- Lack of skill – Requires skilled labour for using the new technologies.
- Ethical issues- AI can raise questions about the responsibility, accountability, and transparency of military actions and decisions. For example, who is liable if an autonomous weapon causes harm or violates international law? How can we ensure that AI respects human dignity and rights?
- Cyber-attacks- AI systems are vulnerable to hacking, manipulation, or sabotage by adversaries.

Conclusion:

It's worth noting that the adoption of AI in the defense sector raises ethical and legal concerns, such as questions about autonomous weapons, data privacy, and accountability. Many countries and international organizations are working to establish guidelines and regulations for the responsible use of AI in military applications

Paper IV

Regulating Generative Artificial Intelligence

Syllabus

- **Mains – GS 3 (Science and Technology) and GS 4 (Ethics)**

Context: The Governments across the world are grappling with the regulation of Artificial Intelligence.

- In less than a year, chatbots like **ChatGPT, Bard, Claude, and Pi** have shown what gen AI-powered applications can do. These tools have also revealed their **vulnerabilities, which has pushed policymakers and scientists** to think deeply about these new systems.

About Generative Artificial Intelligence:

- Generative AI is a type of AI system that can create new content or data that resembles **human-made content, such as text, images, music, code, etc.**
- It works by using neural networks to learn from large amounts of data and then generate outputs based on the patterns and rules it has learned.

Various significant reasons to regulate AI:

- **Lack of transparency:** Many AI algorithms operate as black boxes, making it difficult to understand how they reach their decisions.
 - This lack of transparency raises concerns about accountability and the potential for unfair or biased outcomes.
- **Discrimination and bias outcomes:** AI systems can inherit biases from the data they are trained on, leading to discriminatory outcomes.

- For example, facial recognition algorithms have been shown to have higher error rates for women and people with darker skin tones.
- **Privacy and data protection:** AI systems often rely on vast amounts of personal data, raising concerns about privacy and data protection.
 - Improper handling of data can result in unauthorized access, misuse, or breaches of sensitive information.
- **Security risks:** AI systems can be vulnerable to cybersecurity threats and attacks.
 - Adversarial attacks can manipulate AI models to produce incorrect or malicious results, posing risks in critical domains such as autonomous vehicles or healthcare.
- **Ethical considerations:** AI raises ethical questions related to the impact on jobs, social inequality, and the concentration of power.
 - For example, automated decision-making in hiring processes may perpetuate existing biases and result in unfair outcomes.
- **Lack of regulation and standards:** The rapid advancement of AI has outpaced the development of comprehensive regulatory frameworks and industry standards.
 - This creates a regulatory gap and potential risks associated with unchecked AI development and deployment.

Advantages of Generative AI:

- **Creative assistance:** Generative AI tools can assist and inspire creative professionals in their work.
 - Professionals such as artists, designers, and writers can use generative AI to generate ideas, explore new possibilities, and overcome creative blocks.
- **Real data augmentation:** Generative AI can generate synthetic data that closely resembles real data.
 - This is particularly useful in machine learning applications where a large amount of labelled data is required.
- **Creation of multiple content:** Generative AI enables the automated creation of various types of content, such as text, images, videos, music, and more.
 - This can significantly speed up the content generation process for industries like advertising, entertainment, and marketing.
- **Healthcare:** By generating new medical images and simulations, improving the accuracy and efficiency of medical diagnoses and treatments.
- **Personalization:** Generative AI can be used to create personalized experiences for users.
 - By analysing user preferences and behaviour, generative AI systems can generate tailored recommendations, product suggestions, and customized content, enhancing customer satisfaction and engagement.
- **Problem Solving:** Generative AI can be applied to problem-solving tasks, such as generating new drug compounds, optimizing supply chain logistics, or creating efficient designs.
 - By exploring vast solution spaces, generative AI algorithms can propose novel solutions and accelerate the discovery process.
- **Simulation and training:** Industries like **autonomous vehicles or robotics**, generative AI can create virtual environments to train algorithms and test systems without the need for physical resources or risking safety.

Concerns associated with regulating AI:

- **Rapid technological advancement:** Recent advancements in AI posing challenges for regulators to keep up with the latest developments and effectively regulate a technology that is constantly evolving.
- **Deepfakes:** These are the synthetic media that generative AI models can create by manipulating or combining existing images, videos, or audio.
 - Deepfakes can be used for malicious purposes such as **spreading disinformation, impersonating people, or blackmailing.**
- **Increased costs and competition:** Compliance with regulations may impose additional costs on businesses, particularly smaller companies and startups, limiting their ability to compete in the AI market.
 - The burden of regulatory compliance could disproportionately affect smaller players.
- **Accountability:** Determining responsibility and liability when AI systems cause harm or make erroneous decisions can be challenging.
 - Clarifying the legal frameworks and accountability structures surrounding AI is crucial for effective regulation.
- **Cybersecurity:** Generative AI models can be used by hackers to create new and complex types of malwares, phishing schemes, or other cyberattacks that can evade conventional security measures.



○ Such attacks can have serious consequences such as data breaches, financial losses, or reputational damage.

• **International cooperation:** AI regulation requires international cooperation and collaboration to address global challenges, harmonize standards, and prevent regulatory arbitrage.

○ Developing consensus among different countries with varying interests and priorities can be a complex task.

Artificial Intelligence across the globe:

• **India:** The Ministry of Information Technology and Electronics is working on framing the draft [Digital India Act](#), which will replace the existing IT Act.

- India has established a National AI Programme to promote the efficient and responsible use of AI.

Overall generative AI has the potential to enable efficiency and productivity across multiple industries and applications at scale. However, if not designed and developed responsibly with appropriate safeguards, Generative AI can create harm and adversely impact society through misuse, perpetuating biases, exclusion, and discrimination.

Source: [TH](#)



Practice Questions



Q1) Consider the following pairs:

Commissions	Ministry
1. Central Board of Direct Taxes	Ministry of Finance
2. National Human Rights Commission India	Ministry of Defense
3. National Commission for Protection of Child Rights	Ministry of Education

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

Q2) Consider the following statements

Statement-I :

Commission for Air Quality Management (CAQM) chairperson will hold the post for four years or until s/he attains the age of 65 years.

Statement-II :

CAQM has penal powers.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q3) With reference to the Dadasaheb Phalke Lifetime Achievement Award, consider the following statements:

- 1. It was established in 1969.
- 2. It is presented by the President of India.
- 3. It was first awarded to Devika Rani.

How many of the statements given above is/are correct?

- a. 1 only
- b. 1, 2 and 3 only
- c. 2 and 3 only
- d. 3only

Q4) Consider the following pairs:

Institutions	HQ
SEBI	Pune
LIC	Mumbai
RBI	New Delhi

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

Q5) Consider the following statements

Statement-I :

Serious Fraud Investigation Office (SFIO) investigates serious cases of fraud received from the Department of Company Affairs.

Statement-II :

It has a Regional Office in Mumbai.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q6) With reference to the CSIR PRIMA ET11, consider the following statements:

- 1. Females are observed to mate with only one partner.
- 2. IUCN status is vulnerable.
- 3. It is known for spinning frantically on water to stir up small invertebrates.

How many of the statements given above are correct?

- a. 1 and 2 only
- b. 1, 2 and 4 only
- c. 3 and 4 only

d. 3 only

Q7) Consider the following pairs:

EXERCISE	Countries
JIMEX	Japan-India
Sampriti	India & Sri Lanka
Yudh Abhyas	India & Indonesia

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three
- None

Q8) Consider the following statements

Statement-I :

India Post Payment Bank (IPPB) cannot loan money.

Statement-II :

It can issue credit cards.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement II is incorrect
- Statement-I is incorrect but Statement II is correct

Q9) With reference to Nilgiri tahr, consider the following statements:

- It is listed as Endangered under the IUCN red list.
- It is the state animal of Karnataka.
- It is endemic to the Himalayas.

How many of the statements given above is/are correct?

- 2 only
- 1, 2 and 3 only
- 2 and 3 only
- 1 only

Q10) Consider the following pairs:

National Park	Location
Eravikulam National Park	Tamil Nadu
Similipal National Park	Madhya Pradesh
Silent Valley National Park	Karnataka

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three
- None

Q11) Consider the following statements

Statement-I :

UN Convention on the International Effects of Judicial Sales of Ships was adopted in 2022.

Statement-II :

The convention is also known as the Beijing Convention on the Judicial Sale of Ships.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement II is incorrect
- Statement-I is incorrect but Statement II is correct

Q12) With reference to the Segur elephant corridor, consider the following statements:

- It connects the Western and the Eastern Ghats.
- It has the Nilgiri Hills on its northeastern side.
- Moyar River Valley is on its southwestern side.

How many of the statements given above are correct?

- 1 only
- 1, 2 and 3 only
- 2 and 3 only
- 1 and 3 only

Q13) Consider the following pairs:

Space Missions	Agency
DISCOVERY	NASA
Aditya-L1	ISRO
MOM	JAXA

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

Q14) Consider the following statements

Statement-I :

The UNCTAD publishes the Least Developed Countries Report biannually.

Statement-II :

The second UNCTAD Conference took place in New Delhi, India in 1968.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q17) Consider the following statements :

Statement-I :

Investing in disaster reduction for resilience is one of the four priorities for action of the Sendai Framework.

Statement-II :

It is the predecessor of the Hyogo Framework for Action (HFA).

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q15) With reference to the CALIPSO mission, consider the following statements:

1. It contributes to improved air quality assessments and weather forecasting.
2. It is a joint NASA-ESA mission.
3. It uses laser pulses to measure the altitude and properties of clouds and aerosols with high precision.

How many of the statements given above is/are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. 1 and 3 only
- d. 3 only

Q18) With reference to the Comptroller Auditor General of India (CAG), consider the following statements:

1. His pension comes from the Consolidated Fund of India and is subject to vote.
2. He is the head of the Indian Audit and Accounts Department.
3. He has a tenure of 5 years or 60 years of age, whichever is earlier.

How many of the statements given above are correct?

- a. 2 only
- b. 1, 2 and 3 only
- c. and 3 only
- d. only

Q16) Consider the following pairs:

Temple	Location
Sammed Shikharji Jain Temple	Jharkhand
Modhera Sun temple	Gujarat
Srisailam Temple	Kerala

Q19) Consider the following pairs:

Tiger Reserves	Location
Melghat	Maharashtra
Sanjay Dhubri	Chattisgarh
Ranipur Tiger Reserve	Uttar Pradesh

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

Q20) Consider the following statements :

Statement-I :

'Sahbhagi Dhan' is a drought-tolerant variety of rice.

Statement-II :

'BINA Dhan-11', which is flood-tolerant.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q21) With reference to the Indian One-Horned Rhino, consider the following statements:

- 1. Its status is Least Concern on the IUCN Red List.
- 2. It is the smallest of all the rhino species.
- 3. It is in Appendix II of CITES.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None

Q22) Consider the following pairs:

Animal	IUCN Status
Gaur	Vulnerable
Indian Flying Fox	Least Concern
Indian Vulture	Critically Endangered

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

Q23) Consider the following statements

Statement-I :

Pterygotrigla intermedica discovered recently in Bengal, is the fourth species of the Pterygotrigla genus reported in India to date.

Statement-II :

Gurnards are carnivorous.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q24) With reference to the GCES Web Portal and Mobile Application, consider the following statements:

- 1. It was launched in 2017.
- 2. It provides for a real-time estimate and technology in agriculture.
- 3. It enables the primary worker to upload photos of the plot as well as of the crops through it.

How many of the statements given above is/are correct?

- a. 1 only
- b. 1, 2 and 3 only
- c. 2 and 3 only
- d. 3only

Q25) Consider the following pairs:

Disease	Pathogen
Common cold	Rhino Virus
Measles	Rubeola virus
Smallpox	Variola virus

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

Q26) Consider the following statements

Statement-I :

The e-Courts Mission is undertaken by the Ministry of Electronics and Information Technology.

- a. Only one
- b. Only two
- c. All three
- d. None

Statement-II :

It is being implemented in association with the e-Committee Supreme Court of India and the Department of Justice.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q27) With reference to the Malaria, consider the following statements:

1. It is mostly found in tropical countries.
2. It is not preventable and curable.
3. The infection is contagious.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None

Q28) Consider the following pairs:

Type of Bipolar Disorder	Set up
Bipolar II	at least one manic episode that may be preceded or followed by hypomanic or major depressive episodes.
Cyclothymic disorder	at least two years or one year in children and teenagers with many periods of hypomania symptoms and periods of depressive symptoms
Bipolar I	at least one major depressive episode and at least one hypomanic episode, but never a manic episode.

How many of the above pairs are correctly matched?

Q29) Consider the following statements

Statement-I :

Red sand boa is endemic to India.

Statement-II :

It is ovoviviparous.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q30) Consider the following statements

Statement-I :

The Mera Bill Mera Adhikaar Scheme will be launched on 1st September 2023.

Statement-II :

It is available only on Android currently.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q31) Consider the following pairs:

Disease	Pathogen
Anthrax	Bacillus anthracis
Whooping cough	Clostridium tetani
Tetanus	Bordetella pertussis

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three
- None

Q32) Consider the following statements

Statement-I :

The National eVidhan Application (NeVA) is to serve the Members of Legislative Assemblies more effectively.

Statement-II :

Telangana was the first Digital Legislature in the country.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement II is incorrect
- Statement-I is incorrect but Statement II is correct

Q33) With reference to the Probiotics, consider the following statements:

- Buttermilk is a Probiotic-rich food.
- Probiotics create vitamins.
- Probiotics never contain yeast.

How many of the statements given above are correct?

- Only one
- Only two
- All three
- None

Q34) Consider the following pairs:

Ancient Sanskrit literature	Written by
Abhijnanshakuntalam	Kalidasa
Mricchakatika	Shudraka
Raghuvamsha	Tulsidasa

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three
- None

Q35) Consider the following statements

Statement-I :

Bhoramdeo Wildlife Sanctuary (BWS) is characterized by its lush green forests, rolling hills, and the Maikal Range of the Satpura Hills.

Statement-II :

It is located in Kawardha district, Jharkhand.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement II is incorrect
- Statement-I is incorrect but Statement II is correct

Q36) Consider the following statements

- Smog can comprise airborne particulate matter, mostly PM 2.5 and PM 10.
- The exposure to particulate PM 10 is associated with the worsening of respiratory diseases like asthma and Chronic Obstructive Pulmonary Disease (COPD).
- The combustion of gasoline, oil, diesel fuel, or wood produces much of the PM 2.5.

Which one of the above statements is/are correct?

- 1 and 3
- 2 only
- 1 only
- 1,2, and 3

Q37) Consider the following pairs:

Organization	HQ
Reserve Bank of India	New Delhi
National Crime Records Bureau	Mumbai
Enforcement Directorate	Kolkata

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three

d. None

Q38) Consider the following statements

Statement-I :

The G20 Global Partnership for Financial Inclusion (GPII) Meeting was held in New Delhi, India.

Statement-II :

The meeting involved discussions on ongoing work of the financial inclusion agenda under the G20 India Presidency.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q39) With reference to the Shantiniketan, consider the following statements:

1. Tagore’s Ashram complex is the newest area of Shantiniketan where Maharshi Debendranath Tagore built Shantiniketan Griha, the first guest house.
2. Vishwa Bharati University was established with the principal motto and objective to create oneness in diversity.
3. The trend of Gurukul (open-air classes) is still practiced under the campus trees.

How many of the statements given above is/are correct?

- a. 1 only
- b. 2 and 3 only
- c. 1,2 and 3 only
- d. 3 only

Q40) Consider the following pairs:

Harvest Festival	State
Nuakhai	Orissa
Pongal	Kerala
Bohag Bihu	Arunachal Pradesh

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

Q41) Consider the following statements

Statement-I :

Central Consumer Protection Authority (CCPA) can recall goods or withdrawal services that are “dangerous, hazardous, or unsafe.

Statement-II :

It works under the administrative control of the Ministry of Commerce And Industry.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q42) Consider the following statements about ‘Pulikkali’:-

1. It is performed on the fourth day of Onam celebrations.
2. It was introduced by Maharaja Rama Varma Sakthan Thampuran.
3. It is a recreational street folk art of Karnataka.

Which one of the following is correct in respect of the above statements?

- a. 1 and 2 only
- b. 1 only
- c. 1,2 and 3
- d. 2 and 3 only

Q43) Consider the following pairs:

Ramsar Wetland	Location
Kanwar Lake	Bihar
Nalsarovar	Rajasthan
Yashwant Sagar	Uttar Pradesh

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None

d. None

Q44) Consider the following statements

Statement-I :

"Hindi Diwas" is celebrated annually on 10 January in India.

Statement-II :

The Indian constitution recognizes 22 major languages of India in what is known as "the 8th Schedule" of the Constitution.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q45) With reference to the World Trade Report 2023, consider the following statements:

1. It was launched in September, 2022.
2. It was Published by WTO.
3. It shows that bilateral trade between China and the United States reached a record High.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None

Q46) Consider the following pairs:

GI Tags	State
Navara Rice	Karnataka
Kani Shawl	Jammu & Kashmir
Palakkadan Matta Rice	Kerala

How many of the above pairs are correctly matched?

- a. Only one
- b. Only two
- c. All three

Q47) Consider the following statements

Statement-I :

Electrified Flex Fuel Vehicles provide increased fuel efficiency.

Statement-II :

The world's 1st BS-6 Stage-II, Electrified Flex fuel vehicle, has been developed by Tata Motors.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. Statement-I is correct but Statement II is incorrect
- d. Statement-I is incorrect but Statement II is correct

Q48) With reference to the CSIR PRIMA ET11, consider the following statements:

1. It is a 100% Pure Electric Tractor.
2. It has a state-of-the-art Lithium-ion battery with Prismatic cell confirmation.
3. The farmers can charge the tractor using a conventional home charging socket.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None

Q49) Consider the following statements

Statement-I :

National Payments Corporation of India (NPCI) was established in 2009.

Statement-II :

It is an initiative of the Reserve Bank of India (RBI) and the Indian Banks' Association (IBA).

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement II is incorrect
- Statement-I is incorrect but Statement II is correct

- It was added to the Constitution in 1974 by the 22nd Amendment Act, of 1973.
- It safeguards rights in matters of employment and education.
- It gives special provisions for the state of Arunachal Pradesh.

How many of the statements given above are correct?

- Only one
- Only two
- All three
- None

Q50) With reference to the Article 371D, consider the following statements:

Answers

Ans 1	A	Ans 2	D	Ans 3	B
Ans 4	B	Ans 5	C	Ans 6	D
Ans 7	A	Ans 8	C	Ans 9	D
Ans 10	D	Ans 11	B	Ans 12	A
Ans 13	B	Ans 14	B	Ans 15	C
Ans 16	B	Ans 17	C	Ans 18	A
Ans 19	B	Ans 20	B	Ans 21	D
Ans 22	B	Ans 23	B	Ans 24	C
Ans 25	C	Ans 26	D	Ans 27	A
Ans 28	A	Ans 29	D	Ans 30	C
Ans 31	A	Ans 32	C	Ans 33	B
Ans 34	B	Ans 35	C	Ans 36	D
Ans 37	D	Ans 38	D	Ans 39	B
Ans 40	A	Ans 41	C	Ans 42	A
Ans 43	A	Ans 44	D	Ans 45	B
Ans 46	B	Ans 47	C	Ans 48	C
Ans 49	D	Ans 50	A		

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