

CURRENT AFFAIRS

WEEKLY

WEEK: 3
JANUARY
2023

MAINS

GS-II

- VOICE OF GLOBAL SOUTH SUMMIT
- LAW DECLARED BY THE SUPREME COURT IS BINDING ON ALL
- KESVANANDA BHARATI AND THE 'BASIC STRUCTURE' DOCTRINE
- HOW POLITICAL PARTIES SUPPRESS FREE SPEECH AND MINORITIES IN INDIA?
- PASHU SAKHI MODEL FOR GENERATING SOCIAL VILLAGE CAPITAL
- CENTRE'S TO GATHER STATE'S OPINION TO IDENTIFY MINORITIES
- PROVIDENT FUND PENSION SCHEME IN INDIA
- INDIA'S NEW PROPOSAL FOR MIGRANT VOTING

GS-III

- AGEING WORLD: ELDERLY POPULATION EXPECTED TO DOUBLE OVER THE NEXT 3 DECADES
- CENTRAL GOVT DISCUSSES CYBER SECURITY MEASURES IN FINANCIAL SERVICES SECTOR
- RBI PROPOSED A FORWARD-LOOKING APPROACH FOR LOAN LOSSES
- HEAT STRESS MORE DANGEROUS TO CORALS THAN OCEAN ACIDIFICATION
- TRENDS OF CANCER CASES IN INDIA
- SCIENTISTS AGAINST ICAR 'GAG ORDER' ON GM MUSTARD
- ARTIFICIAL INTELLIGENCE AND ETHICAL CHALLENGES

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ART & CULTURE

- Pongal 2023
- Archaeological Survey discovers 1200-year-old miniature stupas

INTERNATIONAL RELATIONS

- India progress in LAC infrastructure development
- India-US Trade Policy Forum

POLITY & GOVERNANCE

- MAARG Platform
- Samudrayaan Mission

ECONOMY

- Europe's largest known deposit of Rare Earth Elements found in Sweden

- CII Business Confidence Index improves in Q3 FY23
- The World Economic Forum at Davos

ENVIRONMENT

- Gavi forest and Eco-sensitive zones of Kerala
- India now has 212 indigenous livestock breeds after ICAR-NBAGR registers 10 new ones
- Greater Scaup
- Spot Bellied Eagle Owl

SCIENCE & TECHNOLOGY

- James Webb telescope discovers its first Earth-sized exoplanet
- Center for the Fourth Industrial Revolution (C4IR)
- Doppler Weather Radar Network

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- FSSAI sets standards for basmati rice
- Ganga Vilas sails as Varanasi-Dibrugarh cruise
- National Startup Day
- India's First Centre of Excellence to be set up in Shillong
- Noise pollution affects dolphins' ability to communicate: What new study says
- India's population has already overtaken China's
- Rare dinosaur eggs found in Narmada Valley
- Saltie census 2023

SPECIAL

- ChatGPT: Artificial Intelligence and ethical challenges

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— Disclaimer —

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION: A

(MAINS)

CURRENT AFFAIRS

GS FOUNDATION

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VOICE OF GLOBAL SOUTH SUMMIT

CONTEXT:

Addressing the inauguration event of the virtual meeting of Voice of Global south summit, Prime minister has mentioned that the countries of the Global South will drive the world economy in the 21st century.

Highlights of the event:

- The goal of India in 2023 is to represent the Global South declaring **"your voice is India's voice. Your priorities are India's priorities"**.
- The event aims to stress the formula of **"Respond, Recognise, Respect and Reform"** for the Global South.
- **Significance:** The world should respond to the priorities of the Global South, recognise the principle of common but differentiated responsibilities for global challenges, respect the sovereignty of all nations, rule of law and reform international institutions like the United Nations.

The North-South Divide:

- In the 1980s, the **Brandt Line** was developed as a way of showing how the world was geographically split into relatively richer and poorer nations. According to this model:
 - Richer countries are almost all located in the Northern Hemisphere, except for Australia and New Zealand.
 - Poorer countries are mostly located in tropical regions and the Southern Hemisphere.
- Global North refers loosely to countries like the US, Canada, Europe, Russia, Australia, and New Zealand.
 - Global South **includes countries in Asia, Africa, and South America**.
- Some the South countries like China and China have emerged economically, in the last few decades.
- The progress achieved by many Asian countries is also seen as challenging the idea that the North is the ideal.

Factors that position India as the "Voice of the global south":

- **India harmonizes various interests** that are ingrained deeply in India's history and culture.
- Countries in Asia, Africa, and Latin America **trust India** to speak up for them.

- India has been at the forefront of expressing its concerns about fuel, food, and fertilizers.
- India acknowledges the fact, that sustainable development climate action and climate justice could be side-tracked due to more dominant issues.
- **Global order today is not truly reflective of the state of the world.** India has to take the lead in pushing for collective action.
- Institutions and practices created 75 years ago still dominate global decision-making.
- India supports the idea of introducing changes, not just in the United Nations but in other international institutions as well.

How can India be the Voice of the Global South?

- Championing the Global South today would demand **more active Indian engagement with the messy regional politics within the developing world**.
- India **must also come to terms with the fact that the Global South is not a coherent group and does not have a single shared agenda**. There is much differentiation within the South today in terms of wealth and power, needs and capabilities.
- This demands **a tailored Indian policy for different regions and groups** of the developing world.
- India is eager to become a **bridge between the North and the South** by focusing on practical outcomes rather than returning to old ideological battles. If India can **translate this ambition into effective policy**, there will be **no contradiction between the simultaneous pursuit of universal and particular goals**.

LAW DECLARED BY THE SUPREME COURT IS BINDING ON ALL

CONTEXT:

Against the Vice president's criticism of the decision taken by National Judicial appointments commission (NJAC), the Supreme Court has held that its judicial pronouncements may lay down the law.

The Supreme Court as the 'law of the land':

- **Article 141** of the Constitution mandates that law declared by the Supreme Court is binding on all courts including the Supreme Court itself.

- Article 368 postulates only a 'procedure' for amendment of the Constitution and could not be treated as a 'power' vested in the Parliament to amend the Constitution so as to alter the 'core' of the Constitution, which has also been described as the 'basic features/basic structure' of the Constitution.

The argument was rejected by the SC which upheld judicial independence as a basic feature of the constitution.

The Apex Court and Government tussle:

- The apex court has repeatedly been trying to convey to the government and high constitutional authorities in its oral observations and orders recently regarding its authority to decide on judicial appointments and commissions related to it.
- The Parliament is free to bring a new law on judicial appointments, possibly through a constitutional amendment, but that too would be subject to judicial review.

What is the Constitutional backing for it?

- The **Kesavananda Bharati** verdict had made it clear that judicial review is not a means to usurp parliamentary sovereignty, but only part of a "system of checks and balances" to ensure constitutional functionaries do not exceed their limits.
- We are unable to see how the power of judicial review makes the judiciary supreme in any sense of the word. This power is of paramount importance in a federal Constitution.

Constitutional Supremacy vs. Parliamentary sovereignty:

- The Supreme Court of India expressly affirmed constitutional supremacy in the **Minerva Mills case**, holding that "**government, legislature, executive, and the judiciary are all bound by the Constitution, and none is above or beyond the Constitution.**"
- Any law passed by the parliament is subject to interpretation by the Supreme Court in light of the constitution's principles and goals, and if it goes above or above those, it can be declared null and void.
- Although the Indian Constitution does not expressly provide for the division of judicial and parliamentary supremacy, it is not entirely clear.
- It is the **prerogative of the parliament** to amend the constitution and make the laws; it is the duty of the judiciary to decide if the basic structures of the constitution are transgressed by such laws.
- Once the parliament has done its job, its Supreme Court decides its constitutionality through judicial review.
- There have been conflicts between parliamentary supremacy and judicial supremacy. The best example is of **National Judicial Appointment Commission** when Supreme Court pronounced its verdict on the 99th Constitution Amendment Act and the National Judicial

Appointments Commission (NJAC), declaring them to be ultra vires the Constitution.

KESVANANDA BHARATI AND THE 'BASIC STRUCTURE' DOCTRINE

CONTEXT:

The recent statement by Vice President has slammed the Supreme Court's landmark 1973 judgement in the **Kesavananda Bharati** case in which it ruled that Parliament had the authority to amend the Constitution but not its basic structure.

What does the Basic Structure mean?

- The Constitution of India defines its 'basic structure' in terms of **federalism, secularism, fundamental rights and democracy**.
- The Constitution of India provides for '**judicial review**' to safeguard the citizens' liberties and to preserve the ideals on which the Constitution is based.

Who was Kesvananda Bharti?

- He was a monk from Adi Shankaracharya's tradition born in 1940.
- Kesavananda Bharati took sanyas at the **age of 19** and headed to the Edneer Mutt, a Hindu monastery in Kasargod, Kerala.
- In 1961, still only 21, he was appointed as the head of the Mutt, a position he held till his death in 2020.

The Edneer Mutt is believed to have been established by Totakacharya, one of four original disciples of **Adi Shankaracharya** (credited to have synthesised the non-dualistic philosophy of Advaita Vedanta).

- He fought against the **Kerala government's land reforms** and aims when he took the Kerala government to court in February 1970.
- Rather, he was challenging the 1969 Land Reforms enacted by the communist C. Achuta Menon government which had affected his Mutt. Under the reforms, Edneer Mutt lost a large chunk of its property, which contributed to its financial woes.
- Filing a writ petition in the Supreme Court, Kesavananda Bharati argued, that this action violated his fundamental rights – in particular, his fundamental **right to religion (Article 25), freedom of religious denomination (Article 26), and right to property (Article 31)**.

Evolution of Kesvananda Bharti case:

- Parliament's authority to amend the Constitution, particularly the chapter on the fundamental rights of citizens, was challenged as early as 1951.
- After independence, several laws were enacted in the states with the aim of reforming land ownership and tenancy structures.

Article 13 (2) provides for the protection of the fundamental rights of the citizen.

- Parliament and the state legislatures are clearly prohibited from making laws that may take away or abridge the fundamental rights guaranteed to the citizen.
- They argued that any amendment to the Constitution had the status of the law as understood by **Article 13 (2)**.
- This was in keeping with the implementation of the socialistic goals of the Constitution [contained in **Article 39(b)** and (c) of the **Directive Principles of State Policy**] that required **equitable distribution of resources of production among all citizens and prevention of concentration of wealth in the hands of a few**.
- Parliament added the **Ninth Schedule** to the Constitution through the very first amendment in 1951 as a means of immunising certain laws against judicial review.
- Under the provisions of Article 31, which themselves were amended several times later, laws placed in the Ninth Schedule -- pertaining to the acquisition of private property and compensation payable for such acquisition -- cannot be challenged in a court of law on the ground that they violated the fundamental rights of citizens.
- The Ninth Schedule was created with the primary objective of **preventing the judiciary** - which upheld the citizens' right to property on several occasions - from derailing the Congress party-led government's agenda for a social revolution.

What does the case exactly say?

- **Constituent power is superior to ordinary legislative power:**
 - Unlike the British Parliament which is a **sovereign body** (in the absence of a written constitution), the powers and functions of the **Indian Parliament and State legislatures** are subject to limitations laid down in the Constitution.
 - The Constitution does not contain all the laws that govern the country. Parliament and the state

legislatures make laws from time to time on various subjects, within their respective jurisdictions.

- The general framework for making these laws is **provided by the Constitution**.
- Parliament alone is given the **power to make changes** to this framework under **Article 368**.
- Unlike ordinary laws, amendments to constitutional provisions require a **special majority vote in Parliament**.
- **The difference between Parliament's constituent power and law-making powers:**
 - According to **Article 21** of the Constitution, **no person in the country may be deprived of his life or personal liberty except according to a procedure established by law**.
 - Parliament and the state legislatures make the necessary laws identifying offensive activities for which a person may be imprisoned or sentenced to death.
 - Changes to these laws may be incorporated by a simple majority vote in the concerned state legislature.
 - There is no need to amend the Constitution in order to incorporate changes to these laws.
 - However, if there is a demand to convert **Article 21** into the fundamental right to life by abolishing the death penalty, the Constitution may have to be suitably amended by Parliament using its constituent power.
- **Declared that Parliament's constituent power was subject to inherent limitations:**
 - The Parliament could not use its amending powers under **Article 368** to '**damage**', '**emasculate**', '**destroy**', '**abrogate**', '**change**' or '**alter**' the '**basic structure**' or framework of the Constitution.

HOW POLITICAL PARTIES SUPPRESS FREE SPEECH AND MINORITIES IN INDIA?

CONTEXT:

Recently, Human Rights Watch's World Report 2023 highlighted the Indian authorities had "intensified and broadened" their crackdown on activist groups and the media through 2022 and used "abusive and discriminatory policies to repress Muslims and other minorities".

About the report:

- It is the **33rd edition** of the report which reviews human rights practices in close to 100 countries.
- In the section on India, the authorities throughout India arrested activists, journalists, and other critics of the government on what it called "politically motivated" criminal charges, including that of terrorism.

Key highlights of the report:

- In a world in which power has shifted, it is no longer possible to rely on a **small group** of mostly Global North governments to **defend human rights**.
- The world's mobilization around **Russia's war in Ukraine** reminds us of the extraordinary potential when governments realize their human rights obligations on a global scale.
- The responsibility is on individual countries to apply a human rights framework to their policies, and then work together to protect and promote human rights.

India-specific data:

- The Indian authorities misused laws forbidding **forced religious conversion** to target Christians, especially from **Dalit and Adivasi communities**.
- The decision to Jammu and Kashmir's constitutional autonomous status and split it into two federally governed territories, the government continued to **restrict free expression**, peaceful assembly, and other basic rights there.
- The authorities invoked the Jammu and Kashmir Public Safety Act, as well as terrorism allegations under the **Unlawful Activities Prevention Act**, to conduct raids and arbitrarily detain journalists.
- It widened the definition of family to include **same-sex couples**, single parents, and other households by not extending family benefits to them.
- Crime against women has been forbidden through the lens of the minority community and the Hindu ideology of the present government, when the accused of raping a pregnant woman were released under the **Bilkis Bano Case**.

Why Human Rights must be secured by a Nation?

- Human rights are based on dignity, equality and mutual respect – regardless of nationality, religion or beliefs.
- Simply put, Human Rights are those minimal rights which every individual must have against the State or other public authority by virtue of his being a member of the human family, irrespective of any other consideration.

These basic human rights are:

- Universal:** They belong to all (everybody in the world)
- Inalienable:** They cannot be taken away from the people
- Indivisible and interdependent:** Governments should not be able to pick and choose which are respected.
- Human Rights can be violated:** Although they are inalienable, they are not invulnerable. Violations can stop people from enjoying their rights, but they do not stop the rights from existing.
- Essential:** They are essential for freedom, justice, and peace.

Universal Human Rights Declaration:

- The UDHR consists of 30 articles detailing an individual's "**basic rights and fundamental freedoms**". It is **universally applicable to all human beings of varying races, religions and nationalities**.
- It directly inspired the development of international human rights law and was the first step in the formulation of the International Bill of Human Rights, which was completed in 1966 and came into force in 1976.
- Even though the Universal Human Rights Declaration is not legally binding, its contents have been elaborated and incorporated into subsequent international treaties, regional human rights and instruments and in the legal codes of various countries.
- At least one of the **9 binding treaties** of the UDHR has been ratified by all 193 member states of the United Nations, with the majority ratifying four or more.

India is a **signatory to the Universal Declaration of Human Rights**.

What are the provisions related to Human Rights in India?

- According to the **National Human Right Commission of India, Human Rights** as the rights relating to **life, liberty, equality and dignity** of the individual guaranteed by the **Constitution** or embodied in the **International Covenants** and enforceable by **courts in India**.
- National Human Rights Commission:**
 - The **National Human Rights Commission (NHRC)** of India was established in 1993.
 - The statute under which it is established is the **Protection of Human Rights Act (PHRA), 1993**.

- The Act provides for the establishment of **State Human Rights Commissions**.
- **Human Rights as Incorporated in Indian Laws:**
 - **Indian Constitution** incorporated several provisions of **human rights** in **Indian Constitution**.
 - **Part III of Fundamental Rights from Article 14 to 32**.
 - **Articles 14 to 18 of the Constitution** guarantee the **right to equality for every citizen of India**.
 - **Article 19** deals with freedom of speech and expression and **Article 21** provides the Right to life and liberty.

PASHU SAKHI MODEL FOR GENERATING SOCIAL VILLAGE CAPITAL

CONTEXT:

The Pashu sakhi initiative of the Jharkhand government which was started in 2013, for last mile coverage of livestock management has shown successful ground results and is seen to be implemented in other rural areas.

About the initiative:

- **Aim:** To advise farmers about health check-ups for their livestock, vaccinations, de-worming, hygiene, breeding, feeding, and the management of animal waste.
- The project was conceived under the **National Rural Livelihood Mission**, with the objective of building a line of community resource persons.
- Pashu Sakhi, which means '**friends of animals**', is a woman from the village trained to handle routine medical requirements for animals, including cows, buffaloes, bulls, poultry and goats.
- While they are not trained to handle surgical interventions, they can identify diseases, provide medication, and vaccinations, and suggest remedial or preventive actions.
- Pashu Sakhi is a **Community Animal care Service Provider (CASP)** this will enable the last mile coverage in rural areas where clinical services for livestock are not available on time or expensive to afford for the rural poor.

Fund allocation: In 2017-18, the **Jharkhand Opportunities for Harnessing Rural Growth**

(**JOHAR**) took the project under its wing and the **World Bank** began funding it.



A World Bank newsletter said that the pashu sakhi model under JOHAR had been selected by the **UN's Food and Agriculture Organization** and the **International Food Policy Research Institute** as one of the top eight global best practice models for farmer service delivery

Objective:

- The objective of this model is to make livestock-based livelihoods **sustainable and viable enterprises for the rural poor**.
- There will be a specific focus on **the ultra-poor households** who have limited or no access to land or other factors of production.
- It would build a strong extension network of livestock workers who are community-based practitioners and are accountable to community institutions.
- The model would aim at strengthening the existing livelihoods of the rural poor by bringing a clear impetus to livestock-related activities.

Need of the initiative:

- Jharkhand's livestock production is in the hands of **marginal and landless farmers**, with women accounting for over 70% of the production. In fact, many of the *pashu sakhis* own livestock themselves.

Key features:

- The *pashu sakhis* are put through a **three-level (introductory, practical, and upper) 30-day training** programme over seven-day tranches on how to take care of poultry, goats, and pigs.
- After the training, they provide **technical expertise** on taking care of livestock, advise fellow villagers on the economic benefits of rearing livestock for sale, and connect farmers to producer groups and traders, helping them get better access to markets to sell their produce.

- About **30 pashu sakhi** have also been trained with 45 days of additional training in livestock management.
- They will act as a medium of the interface between the **Animal Husbandry & Veterinary Department** and the rural poor by linking the HHS to the nearest Veterinary aid centre at the time of need.

Significance:

- The **pashu sakhisor doctor didis** of Jharkhand have contributed to achieving the mortality rate of goats which has come down by about **30% and of poultry by 40%**.
- It tends to develop livelihood options among the village women and respect among the villagers.
- The initiative has included livestock rearing awareness across the tribal communities and makes them independent.

CENTRE'S TO GATHER STATE'S OPINION TO IDENTIFY MINORITIES

CONTEXT:

The Central government has sought more time in the Supreme Court to gather the views of six States and Union Territories for identifying minorities against its 1993 notification including Muslims, Christians, Sikhs, Buddhists and Parsis.

◎ BACKGROUND:

- ▶ Till now, **24 State governments** and **Union Territories** have given a mixed response;
- ▶ Some leave the task of identifying minorities to the **Centre or preferring the status quo**,
- ▶ While states like **Assam and Uttarakhand, West Bengal and Tamil Nadu** had maintained that minorities should be **identified at the State-level**.
- ▶ The responses are still awaited from states including **Jammu & Kashmir, Arunachal Pradesh, Lakshadweep, Jharkhand, Rajasthan, and Telangana**.
- ▶ While presenting the government's argument, the Attorney General mentioned that the remaining states' response is essential.
- ▶ With this the Supreme Court has given a deadline to the central government in its order, listing the case on **March 21, 2023**.

About the case:

- The National Commission for Minorities has said that those **religious and linguistic minority** communities ought to be '**identified State-wise**'.
- The Commission had referred the same to the court's 11-judge Bench judgment in **the T.M.A. Pai Foundation case of 2002 and Bal Patil verdict of 2005**, in which the apex court had clarified that henceforth the unit for determining the status of both linguistic and religious minorities **would be 'State'**.

Who are considered minorities in India?

- As per the **Section 2(c)** of the National Commission of Minorities Act 1993, the central government arbitrarily notified **five communities** namely;
 - ▶ Muslims, Christians, Sikhs, Buddhists and Parsis as 'minority' communities, without defining 'minority' and framing guidelines for identification at the State level.
- In 2014, **Jainas'** was added to the list as **the sixth minority**.

The three judges Bench of the Supreme Court in the Bal Patil case had categorically refused to grant minority status to Jains.

The National Commission on Minorities Act 1992:

- The NCM Act defines a minority as "a community notified as such by the **Central government**."
- **National Commission on Minorities:**
 - ▶ Unlike the National Commission for SCs and for STs, it is not a constitutional body.
 - ▶ It was set up by an Act of Parliament in 1992.
 - ▶ The Constitution (One Hundred and Third Amendment) Bill, 2004, proposed to establish a new Commission, with constitutional status. But due to debate over who is a 'minority', the Bill lapsed.
- **What is the composition of the commission?**
 - ▶ The Commission shall consist of a Chairperson, a Vice Chairperson and five Members to be nominated by the Central Government.
 - ▶ All members shall be from amongst the minority communities.
- **What are its functions?**
 - ▶ The NCM Act **lists 9 functions** of the Commission:
 - To evaluate the progress of the development of minorities under the Union and states;

- To monitor the working of safeguards provided in the Constitution and in union and state laws;
- To make recommendations for the effective implementation of safeguards for the protection of minority interests;
- To look into, and take up, specific complaints regarding the deprivation of rights and safeguards of minorities;
- to get problems of discrimination against minorities studied, and recommend ways to remove them;
- To conduct studies, research, and analysis on the socioeconomic and educational development of minorities;
- To suggest appropriate measures in respect of any minority to be undertaken by central or state governments;
- To make periodic or special reports to the Centre on any matter concerning minorities; especially their difficulties;
- To take up any other matter this may be referred to it by the central government.

Constitutional and Legal Provisions related to Minorities:

- **National Commission for Minority Education Institution (NCMEI) Act, 2004:**
 - It gives minority status to educational institutions on the basis of six religious communities notified by the government.
 - The term "minority" is not defined in the Indian Constitution. However, the Constitution recognises religious and linguistic minorities.
- **Articles 15 and 16:**
 - Prohibition of discrimination against citizens on the grounds of religion, race, caste, sex or place of birth.
 - Citizens' right to 'equality of opportunity' in matters relating to employment or appointment to any office under the State, and prohibition in this regard of any discrimination on the grounds of religion, race, caste, sex or place of birth.
- **Article 25 (1), 26 and 28:**
 - People's freedom of conscience and right to freely profess, practise and propagate religion.
 - Right of every religious denomination or any section to establish and maintain institutions for religious and charitable purposes, manage its own religious affairs, and own and acquire property and administer it.

- People's freedom to attendance at religious instruction or religious worship in educational institutions is wholly maintained, recognized, or aided by the State.

- **Article 29:**

- It provides that any section of the citizens residing in any part of India having a distinct language, script or culture, shall have the right to conserve the same.
- It grants protection to both religious minorities as well as linguistic minorities.
- However, the Supreme Court held that the scope of this article is not necessarily restricted to minorities only, as the use of the word 'section of citizen's in the Article includes minorities as well as the majority.

- **Article 30:**

- All minorities shall have the right to establish and administer educational institutions of their choice.
- The protection under Article 30 is confined only to minorities (religious or linguistic) and does not extend to any section of citizens (as under Article 29).

- **Article 350-B:**

- The 7th Constitutional (Amendment) Act 1956 inserted this article which provides for a Special Officer for Linguistic Minorities appointed by the President of India.
- It would be the duty of the Special Officer to investigate all matters relating to the safeguards provided for linguistic minorities under the Constitution.

PROVIDENT FUND PENSION SCHEME IN INDIA

CONTEXT:

Even though it has been over two months since the Supreme Court of India has reiterated its approval of the idea of higher pension, there is no stance by the government to raise the pensions under the Employees' Pension Scheme (EPS), 1995.

◎ BACKGROUND:

- In October 2016, the top court rejected the EPFO's notion of a cut-off date and held that the cut-off date, as in the EPS rules, was meant to calculate the pensionable salary only.
 - An estimate shows that 24,672 pensioners got the benefit of higher pension.

- Meanwhile, effective from **September 1, 2014**, the Centre made certain changes to the EPS which dealt with limiting the scheme's applicability to those earning a monthly pensionable salary up to ₹15,000.
- This was a new basis of determination for the pensionable salary and requirement of employees and employers to give a fresh option, within six months and extendable by another six months, on contributions that exceeded the statutory ceiling (now ₹15,000).
- The decision was quashed by three High Courts and the matter went to the Supreme Court again.

Judgment by SC in a nutshell:

- Employees who were existing **EPS members** (as on September 1, 2014) can contribute up to 8.33 per cent of their 'actual' salaries — as against 8.33 per cent of the pensionable salary capped at **Rs.15,000** a month — towards pension.
- The court, however, read down certain provisions concerning the current subscribers to the scheme.
 - The amendment which required members to contribute an additional 1.16 per cent of their salary exceeding Rs.15,000 a month as **ultra vires** (beyond the powers) of the provisions of the **Employees' Provident Funds and Miscellaneous Provisions Act, 1952**.
- The amendments to the scheme shall apply to **employees of exempted establishments** as they do for the employees of regular establishments.

- There are about **1,300 companies** in the list of the EPFO's exempted establishments.

- **Extended time:** The ruling gives EPFO members (who have availed of the EPS) another opportunity **over the next four months** to opt.

What was the Employees' Pension Scheme (EPS), 1995?

- The **Employees' Provident Funds and Miscellaneous Provisions Act, 1952** originally did not provide for any pension scheme.
- **1995 Amendment:** In 1995, through an amendment, a scheme was formulated for employees' pension, wherein the pension fund was to comprise a deposit of 8.33 per cent of the employers' contribution to be made towards provident fund corpus.
- **Maximum pensionable salary:** Rs.5, 000 per month which was later rose to Rs 6,500.

Understanding the Pension Maths:

- The Employees' Pension Scheme aims to provide employees with pension after the age of **58**.
- **Contribution:** Both the employee and the employer contribute **12 per cent of the employee's basic salary and dearness allowance** to the EPF.
- **Diversion of employer contribution:** The employee's entire part goes to EPF, while the 12 per cent contribution made by the employer is split as
 - 3.67 per cent contribution to EPF
 - 8.33 per cent contribution to EPS
- **Government's contribution:** Apart from this, the Government of India contributes 1.16 per cent as well for an employee's pension. **Employees do not contribute to the pension scheme.**

What changed with the 2014 Amendment?

- The scheme was amended in 2014.
- **Raised salary cap:** It raised the pensionable salary cap to Rs 15,000 a month from Rs 6,500 a month.
- **Allowed Employee contribution:** It allowed members along with their employers to contribute 8.33 per cent on their actual salaries (if it exceeded the cap) towards the EPS.
 - It gave all EPS members, as on September 1, 2014, six months to opt for the amended scheme (extendable by another six months).
- **Additional contribution:** The amendment, however, required such members (with actual salaries over Rs 15,000 a month) to contribute an **additional 1.16 per cent of their salary** exceeding Rs 15,000 a month towards the **pension fund**.
- Those who did not exercise the option within the stipulated period or extended period were deemed to have **not opted for contribution over the pensionable salary cap**. With this, the extra contributions already made to the pension fund were to be diverted to the **Provident Fund account** of the member, along with interest.

Employment Provident Fund Organisation (EPFO):

- EPFO is one of the **World's largest Social Security Organisations** in terms of clientele and the volume of financial transactions undertaken.

- At present it maintains 24.77 crore accounts (**Annual Report 2019-20**) pertaining to its members. The central board of trustees which administers the EPFO runs **three schemes - EPF Scheme 1952, Pension Scheme 1995 (EPS) and Insurance Scheme 1976 (EDLI)**.

INDIA'S NEW PROPOSAL FOR MIGRANT VOTING

CONTEXT:

The Election Commission of India (ECI) proposed its new **Remote Electronic Voting Machine (RVM)**, which would allow domestic migrants to vote in national and regional elections but has seen concerns about the logistical and administrative challenges to remote voting.

About the Remote voting Machine (RVM):

- Remote voting may take place in person somewhere other than an **assigned polling station** or at another time, or votes may be sent by **post or cast by an appointed proxy**.
- The ECI in its concept note that the **Multi-Constituency RVM for migrant voting** will have the same security system and voting experience as the EVM.

There have been demands from various political parties that the EC should ensure that **migrant workers, NRIs (Non-Resident Indians) who miss out on voting**, as they cannot afford to go home during elections to exercise their franchise, should be allowed to vote for their constituency from the city they are working in.

Why is there a Need for Remote Voting?

- Due to Unfavourable Conditions:** Voters migrate from the place of their registration to cities and other places for education, employment and other purposes. It becomes difficult for them to return to their registered polling stations to cast their vote.
- Decrease in Voting Turnout:** During the 2019 General elections, nearly 300 million citizens out of a total of 910 million electors didn't cast their votes.
- Precisely it is **about 30 crore voters** who hadn't voted for various and obvious reasons.
- Concerns Regarding Metropolitan Areas:** The ECI also noted the concern about low voter turnout in some of the metropolitan/city areas despite the fact that polling stations are set up within 2 km for any

voter in urban areas. The need to address voting apathy in urban areas was felt.

- Increasing Registrations of Unorganised Workers:** There are nearly 10 million migrant workers, which is for the unorganised sector, registered with the government's **e-SHRAM portal**. If the remote voting project is implemented, it will have far reaching ramifications.
- Health Concerns:** The health concerns of mainly the **senior citizens** also need to be discussed as they're also becoming the main deliberation. In this context, the remote voting facility will result in increasing the voting percentage in urban areas as well as in rural areas.

Features of Remote voting machines:

- The RVM can handle **multiple constituencies (up to 72)** from a single remote polling booth.
- For this, instead of a **fixed ballot paper sheet**, the machine has been modified to have an **'electronic dynamic ballot display'** which will present different candidate lists corresponding to the constituency number of the voter read by a constituency card reader.
- The ECI has **added a digital public display unit** or a monitor to act as an interface between the constituency card reader and the BU display.
- As for the commissioning process of the machine, the electronic ballot will be prepared **by the Returning Officers (ROs)** of home constituencies of voters, and forwarded to the remote RO for uploading in the SLU.

How does the current system of Electronic voting take place?

EVMs started being used on a larger scale in 1992 and since 2000, have been used in all Lok Sabha and State Assembly elections.

- The current EVM setup has a **Balloting Unit (BU)** which is connected to the **VVPAT printer**, both of which are inside the voting compartment.
- The VVPAT is connected to the **Control Unit (CU)**, which sits with the Presiding Officer (PO) and totals the number of votes cast, on its display board.
- Only once the **Polling Officer (PO) presses** the ballot button on the CU, does the BU get enabled for the voter to cast her vote by pressing the key corresponding to the candidate on the ballot paper sheet pasted on the BU.
- The VVPAT, which is essentially a printing machine, prints a slip with the poll symbol and candidate name, once the voter presses the key on the BU.

- This slip is visible to the voter on the VVPAT's glass screen for seven seconds after which it gets dropped off in a box inside the VVPAT.
- Once a vote is cast, the BU becomes inactive till the PO schedules the next vote by enabling it again from the CU.

What are the concerns over Electronic Voting Machines (EVM)?

- The current EVM setup has a Balloting Unit (BU) which is connected to the VVPAT printer, both of which are inside the voting compartment.
- EVMs are liable for **insider fraud, and Trojan attacks**.
- The ECI sends the EVM software to two foreign chipmakers (in the U.S. and Japan) to burn into the CPU and the manufactured chips are then sent to India for assembly into machines by the two PSUs (BEL and ECIL).
 - This means that the manufacturers cannot **read back the contents** of the software to ensure its integrity is intact.
 - **Functionality tests** done by manufacturers can only reveal if the machine is working properly.

What are the existing technical safeguards for EVMs?

- The ECI has claimed that EVMs and their systems are robust, secure, and tamper-proof.
- The ECI claims that the safeguards, such as;
 - The **sealing of machines** with signatures of polling agents,
 - **first-level checks**,
 - **randomisation of machines**, and
 - A series of **mock polls before the actual voting** cannot be circumvented.
- However, domain experts and former observers have shown that vulnerabilities can arise.

AGEING WORLD: ELDERLY POPULATION EXPECTED TO DOUBLE OVER THE NEXT 3 DECADES

CONTEXT:

According to a new report by the United Nations (UN), the number of persons aged 65 years or older worldwide is expected to double over the next three decades.

About the report:

- **Report named:** "World Social Report 2023: Leaving no one behind in an ageing world."
- **Released by:** The UN Department of Economic and Social Affairs.

Key findings:

- The elderly population will reach 1.6 billion in 2050, accounting for more than 16 per cent of the global population.
- **North Africa, West Asia and sub-Saharan Africa** are expected to experience the fastest growth in the number of older people over the next three decades, while **Europe and North America** combined now have the highest share of older persons.
- **Inequality in ageing:** Women live longer than men on average and the rich longer than the poor.
- Economically, women's lower levels of formal labour market participation, shorter working lives and lower wages during working years lead to more economic insecurity in later life.
- **Developed vs. developing countries:** In more developed regions, public transfer systems, including pensions and health care, provide over two-thirds of the consumption by older persons.
- In less developed regions, older persons tend to work longer and rely more on accumulated assets or family assistance.

Recommendations:

- The report recommended that countries **rethink long-held policies** and practices associated with livelihoods and work.
- To employ old age people throughout people's lifetimes to promote labour market participation, increase productivity, uphold good health and prevent poverty.
- To set policies to reduce inequality and promote economic security at older ages in a fiscally sustainable manner, considering pensions and health care.

Concerns highlighted:

- The inequality in gender differences stems partly from poor nutrition and exposure to environmental and occupational hazards that are more common among men and people with limited income and education.
- Public spending in most countries has not been sufficient to cover the growing demand for long-term care.

India's ageing population profile:

- There are nearly **138 million elderly persons** in India in 2021, including 67 million men and 71 million women, according to the report.
- An increase of nearly 34 million elderly persons was seen in 2021 over the population census of 2011. This number is expected to increase by 56 million by 2031.

Policy challenges posed by increased population:

- Ensuring income security for the elderly
- Mitigating the fiscal costs that arise from a high old-age dependency ratio
- Lack of dedicated service and product outlets
- Isolation of seniors in a changing society
- Increasing healthcare costs
- Mental health issues
- Lack of financial support
- In addition, most of the aged are not accorded the dignity of care they deserve in later life.

Why Elderly should be considered assets?

The elderly are assets not only for the family but also for the society and nation. It can be seen from their knowledge and experience in various domains below-

Economic aspects-

- Many private and government companies retain the retired person to harness their knowledge and experience. Similarly, the government retains civil servants and many politicians continue to serve and get re-elected for a long time beyond retirement age. Thus, there is a need to recognise and replicate this model in other areas of economic relevance.

Personal life experience-

- Elder people have faced many aspects of life in comparison to children and adults. The joint family system for generations has seen the passage of knowledge from generation to generation. It has benefitted adults to understand social change, become more Emotionally Intelligent to tackle problems of life, and understand the significance of many aspects like health and fitness.

Traditional knowledge-

- Technology has given new aspects to life and brought many socio-economic benefits. But it is also important to realise the importance of the traditional and cultural values that the elderly possess. For instance, the COVID pandemic has

made people realise the benefits of boosting immunity with traditional foods like '**Golden milk**' and '**Giloy**' which has gained mass acceptance.

Focus on balanced and sustainable life-**Constitutional Protection:**

- Article- 41:** Right to work, to education and to public assistance in certain cases: The State shall, within the limits of economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want.
- Article- 46:** The State shall promote with special care the educational and economic interests of the weaker sections of the people and shall protect them from social injustice and all forms of exploitation.

- The greater focus on industrialisation has neglected the environmental aspects and thus leads to a loss of biodiversity. But the negative consequences of reckless industrialisation have made us realise old saying, which focussed less on monetary aspects and more on social and environmental aspects to maintain intergenerational parity.

Measures for the elderly-

Considering the potential of the elderly as assets, various constitutional, legislative and social steps are taken in India for the benefit of the elderly and to prevent discrimination against them

- National Policy for Older Persons 1999-** This policy included the following steps-

- Setting up a pension fund for ensuring security for those persons who have been serving in the unorganized sector
- Construction of old age homes and day care centres for every 34 districts
- Establishment of resource centres and reemployment bureaus for people above 60 years
- Concessional rail/airfares for travel within and between cities, i.e., 30% discount on trains and 50% on Indian Airlines.
- Enacting legislation for ensuring compulsory geriatric care in all public hospitals.

Insurance for the elderly-

- Ayushman Bharat Scheme-** It is the government's health insurance scheme which includes various former schemes for the elderly such as Senior Citizen Health Insurance Scheme (SCHIS) and Rashtriya Swasthya Bima Yojana (RSBY).

- ▶ **Rashtriya Arogya Nidhi (RAN)**- The scheme provides financial assistance to patients, living below the poverty line and who are suffering from major life-threatening diseases, to receive medical treatment at any of the super speciality Hospitals/ Institutes or other Government hospitals.
- **LIC Insurances schemes**- It has been providing several schemes for aged persons like Jeevan Dhara Yojana, Jeevan Akshay Yojana and Medical Insurance Yojana.
- ▶ **Maintenance and Welfare of Parents and Senior Citizens (MWPSA) Act, 2007**-
 - ▶ It was enacted to provide financial security, welfare and protection for senior citizens. It requires children to provide maintenance for their parents, and the government to provide old age homes and ensure medical care for senior citizens.
- **Other steps**-
 - ▶ **Tax benefits** to elderly persons under Section- 88B, 88D and 88DDB of the Income Tax Act.
 - ▶ The government also proposed to allot 10% of the houses constructed under government schemes for the urban and rural lower-income segments to older persons on easy loans.

Department of Financial Service (DFS):

- The mandate of the Department of Financial Services covers the functioning of Banks, Financial Institutions, Insurance Companies and the National Pension System.
- The finance field includes three main subcategories: personal finance, corporate finance, and public (government) finance.
- Consumers and businesses use financial services to acquire financial goods and achieve financial goals.

Issues of Cyber security in financial sector:

- Cyber security refers to the organization of technologies, procedures, and methods designed to prevent networks, devices, programs, and data from attack, damage, malware, viruses, hacking, data thefts or unauthorized access.
- The main objective of Cyber security in financial services is to safeguard the user's assets. As individuals go cashless, further actions or transactions are done online.
- Individuals' use their digital money like debit cards and credit cards for transactions that require to be safeguarded under Cyber security.

CENTRAL GOVT DISCUSSES CYBER SECURITY MEASURES IN FINANCIAL SERVICES SECTOR

CONTEXT:

The Department of Financial Services (DFS) has organised a half-day Conference on cyber security titled 'Financial Services Cyber Security (FINSCY)' in New Delhi.

About the Conference:

- The event provided an opportunity to share their ideas, practices, and concerns on cyber security measures currently in place in the financial services sector.
- The experts also discussed about the readiness of the sector for future cyber threats and also perspectives on the revised draft Digital Personal Data Protection Bill.
- **Participants:** The senior officers from government agencies and departments, and financial services sector regulators, as also senior executives and chief information security officers (CISOs) of banks, insurance companies, and financial institutes (FIs).

Major Cyber Security Threats Faced in financial sector:

- **Phishing:** Phishing means to get confidential, classified data such as credit, debit card details etc. for malicious actions by hiding as a reliable person in electronic interaction. Online banking phishing scams have advanced constantly. They seem real and genuine, but they trick you into providing away your access data.
- **Malware:** End to end customer appliances like computers and mobile devices are largely used for performing digital transactions therefore, they should be secured.
 - ▶ If it is associated with malware, then it may cause a severe risk to the bank's cyber security whenever they link up with your network. Confidential data goes through this network, and if the user device has malware fitted in it, with no security that malware can create a serious danger to the bank's network.
- **Unencrypted Data:** It is one of the most frequent threats encountered by the banks where the data is left unencrypted, and cyber attackers or hackers manipulate the data right away, thus creating serious issues for the banks.
 - ▶ All information that is kept on computers in banks or online should be fully encrypted. It will guarantee that even if the data is robbed, hackers may not be able to utilize them.

- **Spoofing:** This is one of the latest forms of cyber threats faced by financial institutions. The hackers will pose as a bank website's URL with a website that is related to the original one and works the same way and when the customer enters his or her login records that login credentials are robbed by these hackers and they use it later.
- **Data Manipulation:** Data manipulation attacks take place when a dangerous actor gains entry to an objective system and creates unnoticed changes to data for their own individual gain. An example of this is if a worker modifies customer information data. This will likely go undetected as the transactions will appear genuine, leading to errors in how future data is stored. The longer the manipulation goes unnoticed, the more destruction it will cause.

Suggestive measures:

- **Multi-factor authentication:** Multi-factor authentication (MFA) is a verification technique in which access is only given once a customer gives two or more login credentials. Login credentials can consist of passwords, opts, or fingerprints.
 - When establishing MFA, make sure that login credentials do not come from a similar resource (two passwords) as this will diminish security. MFA is a need for banks as it includes an extra layer of security when trying to access important information.
- **Consumer Awareness:** It is one of the key aspects where the user has to be made aware of not revealing their user credentials to anyone.

RBI PROPOSED A FORWARD-LOOKING APPROACH FOR LOAN LOSSES

CONTEXT:

The Reserve Bank of India (RBI) has published a discussion paper on 'loan loss provision', proposing a framework for adopting an expected loss (EL)-based approach for provisioning by banks in case of loan defaults.

About the loan loss provisions:

- It is based on the premise that the **present incurred loss-based approach** for provision by banks is inadequate, and there is a need to shift to the "**expected credit loss**" regime in order to avoid any systemic issues.

The incurred loss approach requires banks to provide for losses that have already occurred or been incurred.

- The RBI defines a **loan loss provision** as "an expense that banks set aside for defaulted loans".
- Banks set aside a portion of the expected loan repayments from all loans in their portfolio to cover the losses either completely or partially.
- In the event of a loss, instead of taking a loss in its cash flows, the bank can use its loan loss reserves to cover the loss.
- An increase in the balance of reserves is called loan loss provision.
- The level of loan loss provision is determined based on the level expected to protect the safety and soundness of the bank.

The delay in recognising expected losses under an "incurred loss" approach was found to exacerbate the downswing during the financial crisis of 2007-09.

How the loan loss provision will work?

- **Shifting policy framework:** A bank is required to **estimate expected credit losses** based on forward-looking estimations, rather than wait for credit losses to be actually incurred before making corresponding loss provisions.
- **Classification of loan assets:** The banks will need to **classify financial assets** (primarily loans, including irrevocable loan commitments, and investments classified as held-to-maturity or available-for-sale) into one of three categories — Stage 1, Stage 2, or Stage 3.
 - **Stage 1 assets:** are financial assets that have not had a significant increase in credit risk since initial recognition or that has low credit risk at the reporting date. For these assets, 12-month expected credit losses are recognised and interest revenue is calculated on the gross carrying amount of the asset.
 - **Stage 2 assets** are financial instruments that have had a significant increase in credit risk since initial recognition, but there is no objective evidence of impairment. For these assets, lifetime expected credit losses are recognised, but interest revenue is still calculated on the gross carrying amount of the asset.
 - **Stage 3 assets** include financial assets that have objective evidence of impairment at the reporting date. For these assets, lifetime expected credit loss is recognised, and interest revenue is calculated on the net carrying amount.
- The classification of loan will depend upon the **assessed credit losses on them**, at the time of initial recognition as well as on each subsequent reporting date, and make necessary provisions.

Benefits	Concerns
<ul style="list-style-type: none"> It will enhance the resilience of the banking system in line with globally accepted norms. It is likely to result in excess provisions as compared to shortfall in provisions as seen in the incurred loss approach. 	<ul style="list-style-type: none"> Faced with a systemic increase in defaults, the delay in recognising loan losses resulted in banks having to make higher levels of provisions when banks needed to shore up their capital. This affected banks' resilience and posed systemic risks.

HEAT STRESS MORE DANGEROUS TO CORALS THAN OCEAN ACIDIFICATION

CONTEXT:

Global warming poses a more significant threat to coral growth and reef accretion than ocean acidification (OA), according to a new study.

How heat stress affects corals more than ocean acidification?

- Ocean acidification slows the rate at which coral reefs generate calcium carbonate, thus slowing the growth of coral skeletons.
- Heat stress directly affects coral performance in hospite exacerbation of light stress in the symbionts, whereas ocean acidification induces moderate effects on coral metabolism, some of them even positive.
- As temperatures rise, mass coral bleaching events and infectious disease outbreaks are becoming more frequent.

Role of corals:

- Corals are animals. Coral reefs boost biodiversity, buffer storms and support the livelihoods of over one billion people.
- Coral reefs do not absorb carbon and do not play a direct role in climate change mitigation. However, they are important for climate adaptation.
- In the last decade, the world lost about 14 per cent of its coral reefs.

What is Coral Bleaching?

- It occurs when abnormal environmental conditions, such as warmer sea temperatures, cause coral polyps to expel algae (zooxanthellae) living in their tissues, causing the coral to turn completely white.
- Normally, coral polyps live in an endosymbiotic relationship with this algae crucial for the health of the coral and the reef as the algae provides up to 90% of the coral's energy.
- When a coral bleaches, it is not dead. Corals can survive a bleaching event, but they are under more stress and are subject to mortality.
- Corals can recover if the water temperature drops and the algae are able to recolonise the coral reefs.

Factors responsible for Coral Bleaching:

- Increased water temperature (most commonly due to global warming), or reduced water temperatures
- Oxygen starvation caused by an increase in zooplankton levels
- Increased solar irradiance (photosynthetic active radiation and ultraviolet light)
- Increased sedimentation (due to silt runoff)
- Bacterial infections
- Changes in salinity
- Herbicides
- Extreme low tide and exposure
- Cyanide fishing
- Pollutants such as oxybenzone, butylparaben, octyl methoxycinnamate, or enzacamene: four common sunscreen ingredients that are nonbiodegradable and can wash off of skin
- Ocean acidification due to elevated levels of CO₂ caused by air pollution
- Being exposed to Oil or other chemical spills

Required measures:

- A better understanding of the underlying mechanisms that enable corals to tolerate heat can significantly improve coral reef conservation and restoration efforts.

Understanding the terms:

- Heat Stress:** Thermal stress is a term to describe a temperature change that is severe enough to cause unfavourable and even lethal conditions to aquatic organisms, their populations, community structure, or the ecosystem.
- Ocean acidification:** Ocean acidification describes the lowering of seawater pH and carbonate saturation that results from increasing atmospheric CO₂ concentrations.

TRENDS OF CANCER CASES IN INDIA

CONTEXT:

According to a report by the American Cancer Society, deaths due to cancer have declined by 33% in the United States since 1991 attributing the success to early detection, lower rates of smoking, and improvements in cancer treatment.

- ❑ This trend is yet to be reflected in India. Even with improvements in treatment, both the incidence of cancer and mortality continue to rise in the country.

About the Disease:

- Cancer is a disease in which **abnormal cells divide** uncontrollably and destroy body tissue.
- It can start almost anywhere in the human body, which is made up of trillions of cells. Normally, human cells grow and divide to form new cells as the body needs them. When cells grow old or become damaged, they die and new cells take their place.
- When cancer develops, this orderly process breaks down. As cells become more and more abnormal, old or damaged cells survive when they should die and new cells form when they are not needed. These extra cells can divide without stopping and forms tumors, which can spread through the blood or the lymph system and form **new tumors far from the original tumor**.

• Causes of Cancer:

- Biological or internal factors, such as age, gender, inherited genetic defects and skin type.

- Environmental exposure, for instance to radon and UV radiation, and fine particulate matter.
- Occupational risk factors, like carcinogens such as chemicals, radioactive materials and asbestos.
- Lifestyle-related factors.

Cancer Detection:

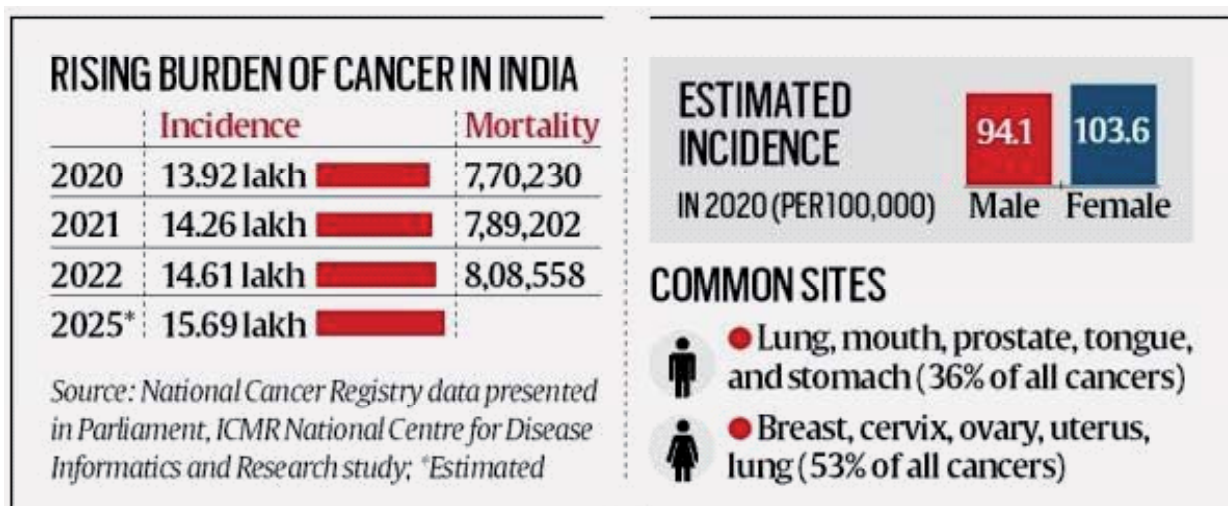
- The detection should be based on biopsy and histopathological studies of the tissue and blood and bone marrow tests for increased cell counts in the case of leukemias.
- Techniques like radiography (use of X-rays), CT (computed tomography) and MRI (magnetic resonance imaging) are very useful to detect cancers of the internal organs.
- Antibodies against cancer-specific antigens are also used for detection of certain cancers.
- Techniques of molecular biology can be applied to detect genes in individuals with inherited susceptibility to certain cancers.

Treatment:

- The common approaches for treatment of cancer are surgery, radiation therapy, chemotherapy and immunotherapy.
- Several chemotherapeutic drugs are used to kill cancerous cells. Some of these are specific for particular tumors. Majority of drugs have side effects like hair loss, anaemia, etc.

What is the incidence of cancer and mortality in India currently?

- An estimated 14.6 lakh new cancer cases were detected in 2022, up from 14.2 lakh in 2021 and 13.9 lakh in 2020, as per data from the National Cancer Registry of the Indian Council of Medical Research (ICMR) presented in Parliament.



- Deaths due to cancer increased to an estimated 8.08 lakh in 2022 from 7.9 lakh in 2021 and 7.7 lakh in 2020.
- The incidence of all cancers is estimated to increase to 15.7 lakh by 2025, according to the data.
- One in nine Indians will develop cancer during their lifetime, according to an ICMR study using data from population-based cancer registries.
- One in 68 men will develop lung cancer and one in 29 women will develop breast cancer, according to the study.
- The incidence of cancer is higher among women — 103.6 per 100,000 in 2020 compared to 94.1 among men.
- Among men, the most common cancers were of the lung, mouth, prostate, tongue, and stomach; for women, they were breast, cervix, ovary, uterus, lung.

What is the pattern of cancer cases in India?

- The incidence of cervical cancer has dropped in India over the last 50 years from 45 to 10 per 100,000 population
 - Rates of cervical cancer have declined because of later marriages, fewer children, better hygiene, and vaccination.
- There is an increase in rates of breast cancer, especially in urban centres.
 - And the incidence of breast cancer has gone up because of the same reasons — later age of marriage, having the first child at a later age, not breastfeeding, and a high protein diet.
- The rates of tobacco-related cancers — oral, oesophageal cancers are also coming down.
 - This is largely due to tobacco laws that have brought down smoking in public places,
- Lung cancers, however, remain a cause for concern.
 - Lung cancer is caused not only by smoking. For example, lung cancer rates are high in Arunachal Pradesh because they light fires indoors in winter.
 - Unfortunately, the survival rate for lung cancer is not very high and it is mostly diagnosed in the late stages.
- The cure rate for pancreatic cancer has doubled from 3% 50 years ago to 6%.

Challenges in India:

- In India, most cancer research is carried out in tertiary cancer centres and specialised institutions of biomedical science, against well-developed cancer research networks in high-income countries.
- The rising burden of cancer in India acts as a major drain on research time, particularly for clinical staff. According to estimates, there are only 2,000 cancer specialists in India for 10 million patients. Besides,

infrastructure to support cancer research has a long way to go.

- Treatment of cancer is quite expensive and not every patient can afford it. The cost of the drug is around Rs. 50,000-60,000 per month and the duration varies from patient to patient.

Methods to reduce the cancer burden:

- Patients should pay attention to symptoms and get check-ups regularly.
- Advise persons who addicted to tobacco to avoid at any cost. Vaccines also help lower the cancer risk in human.
- Government should cap the prices of cancer medicines as these are very expensive.
- Finally, changes in diets can make big difference in cancer prevention. Eat organic and loading up with good dose antioxidants can help in prevention of cancer.

Government Interventions:

- National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)** are being implemented under the **National Health Mission (NHM)**. The primary components include awareness generation for cancer prevention, screening, early detection and referral to an appropriate institution for treatment.
- 'Tertiary Care for Cancer'** scheme was launched with primary purpose to set up individual units in every state.
- National Tobacco Control Programme** is launched to create awareness about the dangerous effects of tobacco consumption, reduce the demand and supply of tobacco products.
- Rashtriya Arogya Nidhi (RAN)** was launched to meet the financial demands for cancer treatment
- The recent finding of a drug for **breast cancer patients** will be able to extend the life duration. The drug has an advantage over chemotherapy and may have less side effects compared to standard treatment.

SCIENTISTS AGAINST ICAR 'GAG ORDER' ON GM MUSTARD

CONTEXT:

The Scientists, public representatives and environmentalists have joined hands to condemn a "gag order" by the Union Ministry of Agriculture and Farmers' Welfare on genetically modified (GM)

mustard crop, Dhara Mustard Hybrid (DMH-11).

- Let us see the case and analyse the stance on GM Mustard.

◎ BACKGROUND:

- **Genetic Engineering Appraisal Committee** had recommended the environmental release of GM mustard seeds for trials, demonstrations and seed productions October 18, 2022.
- The order denies scientists the **right to practise science** by presenting evidence-based analysis.
- The scientist cited **Article 51 (A)** in the Constitution of India; "It shall be the duty of every citizen of India to develop the scientific temper, humanism, the spirit of inquiry and reform."

About GM Mustard:

- The hybrid mustard DMH-11 has been produced which contains two alien genes isolated from a soil bacterium called **Bacillus 'amyloliquefaciens'**.

DMH-11 is claimed to have shown an average **28% yield** increase over **Varuna** in contained field trials carried out by the Indian Council of Agricultural Research (ICAR).



- The **first gene ('barnase')** codes for a protein that impairs pollen production and renders the plant into which it is incorporated male-sterile.
- This plant is then crossed with a fertile parental line containing, in turn, the second 'barstar' gene that blocks the action of the barnase gene.

- The resultant F1 progeny is both high-yielding and also capable of producing seed/ grain.
- This system was used to develop DMH-11 by crossing a popular Indian mustard variety 'Varuna' (the barnase line) with an East European '**Early Heera-2' mutant (barstar)**.

Role of GEAC:

- GEAC is a body responsible for appraisal of proposals relating to the **release of GM organisms and products** (ordinarily considered hazardous) into the environment.
- The GEAC is the apex biotech regulatory body in India. It is a statutory body.

The functions of the GEAC are:

- It is responsible for the appraisal of activities that involve the large scale use of hazardous microbes and recombinants in research and industrial production from the point of view of the environment.
- The GEAC also assesses proposals regarding the release of genetically engineered products and organisms into the environment, and this includes experimental field trials as well.
- The body also looks into proposals regarding the use of living modified organism that comes in the risk category III and above in the import/manufacture of recombinant pharma products, or where the end-product of the recombinant pharma product is a modified living organism.
- The Committee has the power to take punitive action against people/body under the Environment (Protection) Act.
- The approval of the GEAC is mandatory before genetically modified organisms and products derived from them can be used commercially.

Concerns associated:

- The presence of a third 'bar' gene, which makes GM mustard plants tolerant to the spraying of **glufosinate ammonium**, a chemical used for killing weeds. This will cause displacement of manual labour engaged in weeding by promoting use of chemical herbicides.
- The GM mustard can threaten the population of honey bees as the Mustard flowers are a source of nectar for honey bees and many other pollinator insects.

Section: B

(SPECIALS)

CURRENT AFFAIRS

ARTIFICIAL INTELLIGENCE AND ETHICAL CHALLENGES

CONTEXT:

Teachers and academicians have expressed concerns over ChatGPT's impact on written assignments, as have those at risk of running malicious code.

ChatGPT as Artificial Intelligence (AI) system:

- ChatGPT is remarkable. It's a new AI model from OpenAI that's designed to chat in a conversational manner.
- AI systems are not capable of behaving in an **ethical or unethical** manner on their own, as they do not have the ability to **make moral judgments**.
- Instead, the ethical behaviour of an AI system is determined by the **values and moral principles** that are built into the **algorithms and decision-making processes** that it uses.
 - For example, an AI system designed to assist with medical diagnoses might be programmed to prioritize the well-being of patients and to avoid causing harm.
- Similarly, an AI system designed for use in a **self-driving car** might be programmed to prioritize safety and to follow traffic laws.
- In these cases, the AI system's behaviour is determined by the ethical guidelines that are built into its algorithms and decision-making processes.
- However, it's important to note that these guidelines are determined by the humans who design and implement the AI system, so the ethics of an AI system ultimately depend on the ethics of the people who create it.

What is an Artificial Intelligence Ethics?

- AI ethics is a system of moral principles and techniques intended to inform the development and responsible use of artificial intelligence technology.
- As AI has become integral to products and services, organizations are starting to develop AI codes of ethics.
- An AI code of ethics, also called an AI value platform, is a policy statement that formally defines the role of artificial intelligence as it applies to the continued development of the human race.
- The purpose of an AI code of ethics is to provide stakeholders with guidance when faced with an ethical decision regarding the use of artificial intelligence.

Why ethics becomes necessary for AI?

- AI is a technology designed by humans to replicate, augment or replace human intelligence.
- These tools typically rely on large volumes of various types of data to develop insights. Poorly designed projects built on data that is faulty, inadequate or biased can have unintended, potentially harmful, consequences.
- Moreover, the rapid advancement in algorithmic systems means that in some cases it is not clear to us how the AI reached its conclusions, so we are essentially relying on systems we can't explain to make decisions that could affect society.

Challenges while using AI:

- **Explainability:** When AI systems go awry, teams need to be able to trace through a complex chain of algorithmic systems and data processes to find out why. Organizations using AI should be able to explain the source data, resulting data, what their algorithms do and why they are doing that. "AI needs to have a strong degree of traceability to ensure that if harms arise, they can be traced back to the cause," said Adam Wisniewski, CTO and co-founder of AI Clearing.
- **Responsibility:** Society is still sorting out responsibility when decisions made by AI systems have catastrophic consequences, including loss of capital, health or life. Responsibility for the consequences of AI-based decisions needs to be sorted out in a process that includes lawyers, regulators and citizens. One challenge is finding the appropriate balance in cases where an AI system may be safer than the human activity it is duplicating but still causes problems, such as weighing the merits of autonomous driving systems that cause fatalities but far fewer than people do.
- **Fairness:** In data sets involving personally identifiable information, it is extremely important to ensure that there are no biases in terms of race, gender or ethnicity.
- **Misuse:** AI algorithms may be used for purposes other than those for which they were created. Wisniewski said these scenarios should be analysed at the design stage to minimize the risks and introduce safety measures to reduce the adverse effects in such cases.

Characteristics of an ethics based AI model:

- An ethical AI system must be inclusive, explainable, have a positive purpose and use data responsibly.
- An inclusive AI system is **unbiased and works equally well** across all spectra of society.
- It also requires a careful audit of the trained model to filter any problematic attributes learned in the process. And the models need to be closely monitored to ensure no corruption occurs in the future as well.
- An AI system endowed with a positive purpose aims to, for example, reduce fraud, eliminate waste, reward people, slow climate change, cure disease, etc.
- An AI system that uses data responsibly observes data privacy rights. Data is key to an AI system, and often more data results in better models. However, it is critical that in the race to collect more and more data, people's right to privacy and transparency isn't sacrificed.
- Responsible collection, management and use of data are essential to creating an AI system that can be trusted.



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Section: C

(PRELIMS)

CURRENT AFFAIRS

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PONGAL 2023

◎ **CONTEXT:** The Pongal for the year 2023 is celebrated on January 15.

About:

- Pongal is observed by the Tamil community across the world in mid-January every year.
- It is one of the biggest harvest festivals in India along with Makar Sankranti.

According to the **Gregorian calendar**, the Pongal festival is a four-day festival; therefore, it will be celebrated from **15 January to 18 January 2023**.

- The Pongal festival is a four-day celebration affair.
- Each day is marked by different festivities- The first day is called the Bhogi festival; the Second day is called Thai Pongal; the Third day is called Mattu Pongal; the Fourth day is called Kaanum Pongal.

Significance:

- It is basically a harvesting festival or it can be considered as the '**thanksgiving festival**' because this festival is celebrated to thank the **Sun God and Lord Indra** for helping farmers in getting better-yielding crops.
- During the festival, people reject old belongings and welcome new stuff.

Culture associated:

- The preparation of the traditional "Pongal" dish is the festival's most important custom.
- Rice that has just been harvested is used, and it is cooked by boiling it with milk and raw cane sugar (jaggery).
- The sweet dish occasionally includes extra ingredients like cardamom, raisins, split green gramme, and cashew nuts.
- Other components include ghee and coconut (clarified butter from cow milk).
- Some people prepare the Pongal dish in addition to the sweet version, such as the salty and savoury varieties (venpongal).

In certain communities, women gather together to cook as a social activity by bringing their "cooking pots to the town centre, or the main square, or near a temple of their choice, or simply in front of their own home."

ARCHAEOLOGICAL SURVEY DISCOVERS 1200-YEAR-OLD MINIATURE STUPAS

◎ **CONTEXT:** Patna circle of the Archaeological Survey of India (ASI) has discovered two 1200-year-old miniature votive stupas during landscaping activities.

◎ ABOUT:

- Location: It has been found near Sarai Tila mound within the premises of 'Nalanda Mahavihara', a world heritage site in Nalanda district in the state.
- The stupas, carved from stone, depict Buddha figures.

What are stupas?

- A Stupa is a hemispherical structure which **symbolizes the burial mound of Buddha**. It rose to prominence after the advent of Buddhism and peaked during **Ashoka's reign**. Stupas evolved as **Chorten in Tibet and pagodas in East Asia**.

Nalanda Mahavihara site:

- The Nalanda Mahavihara site comprises the archaeological remains of a monastic and scholastic institution dating from the **3rd century BCE to the 13th century CE**.
- It includes stupas, shrines, viharas (residential and educational buildings) and important art works in stucco, stone and metal.

Importance of stupas

■ Religious importance:

- **Relic repository:** In the beginning stupas were built to venerate and safeguard relics and remains of Buddha.
- **Sacred place:** Along with monasteries (viharas) later, stupas were included in chaityas, which is a prayer hall.
- **Circumambulation path:** an important Buddhist ritual around the path surrounding it.
- **The object of veneration**—it is believed that relics of buddhas body were buried within the stupas

■ Philosophical:

- **Meditation:** It is an important place for meditation.



- **Commemorative:** In the Tibetan tradition, stupas were built to celebrate the life events of the Buddha.

■ **Symbolic: The stupas encapsulate the teachings and ideology of Buddha**

- E.g. **Dhamek stupa at Sarnath marks the spot** where the Buddha gave his first sermon after attaining enlightenment, revealing his Eightfold Path leading to nirvana.

■ **Historical: Provide information about the various dynasties who ruled India. Eg :**

- Mauryas : Bairat stupa , Sanchi stupa , Bharhut stupa etc
- Sathavahanas : Amaravati stupa etc

■ **Architectural –**

- **Oldest stone structures:** The stupas at Sanchi and Bharhut are one of the oldest stone structures in India.
- **Inclusion of text in narrative panels** – at Bharhut (Queen Maya's dream)
- **Use of marble** – at Amravati stupa
- **Taxila excavations reveal stupas with Bodhisatva images,** Gandhara influence and patronage of Kanishka.

INDIA PROGRESS IN LAC INFRASTRUCTURE DEVELOPMENT

CONTEXT:

The Indian Army Chief has recently talked about the Infrastructure development on the Indian side of Line of actual control (LAC), highlighting India's concern for border security and management against China.

◎ BACKGROUND:

- After China's move for building and expanding its reach, connectivity and development projects near LAC, India has also started working in the development direction.
- In the past five years, the Border Roads Organisation (BRO) has constructed close to 6,000 km of roads pan-India; of this, 2,100 km has been along the northern borders.
- As for the upgradation of bridges, which are needed to carry guns, and tanks among others, as many as 7,450 metres of bridges were constructed.
- For all-weather connectivity in both Ladakh and Kameng in Arunachal, there is the Zojila tunnel and the Z-Morh tunnel, which will link the valley to Ladakh and will be operationalised by the end of the year.
- There is also a plan for alternate connectivity to

the all-important Darbuk-Skyok-Daulat Beg Oldie (DBO) road through Saser la, so not only plan for all-weather connectivity but also alternate connectivity.

■ In Arunachal Pradesh:

- China claims **90,000 square kilometres** in India's frontier region of the northeast, roughly including the whole of Arunachal Pradesh.
- Among the projects currently being executed by the Indian government in the Border States is the construction of 73 roads of operational significance for better access to the Line of Actual Control (LAC).
- The government has informed Parliament that 2,094 kilometres of roads were constructed along the border at a cost of around \$1.8 billion over the past five years.

■ In Leh and Ladakh:

- Atal Tunnel at 10,000 feet in Rohtang was inaugurated by Prime Minister, not only shortening travel time between Manali in Himachal Pradesh and Leh, Ladakh but giving 12-month connectivity to people of Lahaul and Spiti in the hill state.
- Border Roads Organisation (BRO) has proposed **eight tunnels** that will enhance connectivity to Ladakh; a couple of similar projects are also planned for Kashmir linking roads to the Line of Control.

■ In Sikkim:

- BRO's **Project Swastik** has constructed Samdong Bridge on Lachen- Kaley Road in Sikkim, also in the Eastern Sector of the LAC.
- A 30 m-long **PSC box Girder Bridge** will provide vital connectivity to our troops and locals alike.
- The bridge will be dedicated to the Nation along with other **27 infrastructure projects** by the Raksha Mantri on 27 Dec 2022.

INDIA-US TRADE POLICY FORUM

- ◎ **CONTEXT:** Recently, the 13th Ministerial-level meeting of India – United States Trade Policy Forum (TPF) held in Washington, DC, on January 11, 2023.

What is the India-US TPF?

■ About:

- The India-US TPF aims to activate its working groups in the fields of **agriculture, non-agriculture goods, services, investment, and intellectual property** to meet frequently and address issues of mutual concern in a mutually beneficial manner.
- The idea is to **deliver tangible benefits to both countries by resolving outstanding market access issues**.

■ Highlights of the Meeting:

- While the two sides appreciated the **rise in bilateral trade in goods and services** (which reached **~160 billion USD in 2021**), they also recognised that for economies of their size, **significant potential still remains unfulfilled**.
- The US welcomed India's participation in the **Indo-Pacific Economic Framework for Prosperity (IPEF)**.
- Both the countries have **like-minded views about the efficiency of IPEF for continued growth**, peace, and prosperity in the **Indo-Pacific region**.
 - The Ministers welcomed the finalization of the **Turtle Excluder Device (TED)** design with the technical support of the National Oceanic and Atmospheric Administration (NOAA).
 - The TED will help in minimizing the **impact of fishing on sea-turtle populations**.
 - A **new TPF Working Group on Resilient Trade** was launched to help the officials deepen bilateral dialogue on a range of issues. Till the next TPF Ministerial meeting, it will focus on:
 - **Trade facilitation**
 - Promotion of **labour rights and workforce development**
 - **Circular economy**; role of trade in environment protection

How are India's Trade Ties with the US?

- India-US bilateral partnership today encompasses a whole host of issues including the response to **Covid-19**, economic recovery post-pandemic, the **climate crisis** and **sustainable development**, critical and emerging technologies, **supply chain resilience**, education, the **diaspora**, and **defence and security**.
- The **US is India's largest trading partner** and most important export market. It is **one of the few countries with which India has a trade surplus**. In 2021-22, India had a **trade surplus of USD 32.8 billion** with the US.

- Although India and the US have quite contradictory responses towards the **Russia-Ukraine crisis**, the two have underscored their commitment to continue to build on the momentum of recent years and **not lose sight of the larger strategic picture**.

MAARG PLATFORM

- ◎ **CONTEXT:** Commerce and industry minister Piyush Goyal will launch the **MAARG platform (Mentorship, Advisory, Assistance, Resilience, and Growth)**, which would facilitate mentorship between startups and entrepreneurs across sectors, stages, and functions.

About MAARG:

- MAARG (Mentorship, Advisory, Assistance, Resilience, and Growth), the National Mentorship Platform is a one stop platform to facilitate mentorship for Start-Ups across diverse sectors, functions, stages, geographies, and domains.

National Startup Day:

- The Prime Minister has announced 16th January, the founding day of Startup India, as the National Startup Day.
- Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry is organizing Startup India Innovation Week from 10th January 2023 to 16th January 2023 to celebrate the Indian Startup Ecosystem.
- In this context, various Start-Up related workshops, capacity building sessions and events are being hosted by Start-Up India with each session dedicated to a particular theme pertaining to the entrepreneurial ecosystem in India.

Startup in India:

- India has overtaken the US and China as the third-largest environment in the world for startups, according to the Economic Survey 2021–22.
- In India, there are more than 80,000 startups, and more than hundreds of them have become unicorns
- Currently, there are over 88,000 startups recognised by the DPIIT.
- The government recently announced a USD 200 million investment in startups that design code, tools, or devices.

Benefits of Startups for the Economy:

- Opportunity:** Start-ups are providing an opportunity to the entrepreneurial youth of India an opportunity to express their idea and grow their finances exponentially.
- Wealth creation has therefore become synonymous with start-ups.
- Employment:** The establishment of a start-up brings with it growth in employment opportunities.
- Catering to the needy section:** The creation of products or services can cater to the needs of a section of the Indian population and make them economically more potent. For example, the availability of online e-commerce platforms to traditional artisans who can now more easily reach their customers.

Current Issues/Challenges:

- Short-term solution:** Statistically, a large number of start-ups do not make it big and are shut down.
- Economic issues:** Closure of start-ups leads to
 - loss of the capital invested in them
 - loss of employment
 - sets a demotivating example for those willing to take chance by establishing a business entity
- Disparities:** Disparities in salary and working conditions are also known to exist in the start-up ecosystem to a large extent.



- **Unregulated:** The start-up sector being less regulated has also led to no minimum labour laws being applied to it.
- **Exploitation:** Most labourers working for start-ups are not entitled to worker's welfare legislation and therefore face exploitation.

SAMUDRAYAAN MISSION

- ◎ **CONTEXT:** India is aiming to send three persons to 6,000 meters below sea level as part of the Samudrayaan Mission. The mission heralds India's ushering into an era of a "Blue Economy" which is going to play a major part in building India's overall economy during the years to come.

About Samudrayaan Mission

- Samudrayaan Mission is aimed to develop a self-propelled manned submersible to carry three human beings to a water depth of 6,000 meters in the ocean with a suite of scientific sensors and tools for deep ocean exploration.
- It has an endurance of 12 hours of operational period and 96 hours in case of emergency.
- The projected timeline is five years for the period 2020-2021 to 2025-2026.

What are the main components of the Deep Sea Mission?

There are six components to this mission.

- **First component:** A manned submersible will be developed to carry three people to a depth of 6,000 metres in the ocean.
- **Second component:** Developing a suite of observations and models to understand and provide future projections of important climate variables.
- **Third component:** Development of technological innovations to explore and conserve deep-sea biodiversity.
- **Fourth component:** Exploring multi-metal hydrothermal sulphides mineralisation along the Indian Ocean mid-oceanic ridges.
- **Fifth component:** Focus on developing an offshore Ocean Thermal Energy Conversion (OTEC) powered desalination plant which will work with tidal energy.
- **Sixth component:** Establishment of an advanced Marine Station for Ocean Biology.

Significance:

- The preliminary design of the manned submersible 'MATSYA 6000' is completed and realization of the vehicle has been started along with various organizations including ISRO, IITM, and DRDO roped-in to support the initiative, the Union Minister added.
- Developed indigenously, MATSYA 6000 is a manned submersible vehicle. It will facilitate the Ministry of Earth Sciences (MoES) in conducting deep ocean exploration.

Need in India:

- For India, there lies a unique maritime position, a 7517 km long coastline, which is home to nine coastal states and 1,382 islands.
- The Government of India's vision of 'New India' highlights the Blue Economy as one of the ten core dimensions of growth.

Which other entities are involved in Samudrayaan?

- Indian Space Research Organization (ISRO), IITM, and Defence Research and Development Organisation (DRDO) will actively participate in this mission.

With the launch of the unique ocean mission 'Samudrayaan' in October 2021, India joined the elite club of nations such as the US, Russia, Japan, France, and China to have niche technology and vehicles to carry out subsea activities.

EUROPE'S LARGEST KNOWN DEPOSIT OF RARE EARTH ELEMENTS FOUND IN SWEDEN

- ◎ **CONTEXT:** Sweden's LKAB had identified more than 1 million tonnes of rare earth oxides in the Kiruna area in the far north of the country, the largest known such deposit in Europe.

What are Rare Earth Elements (REE)?

- The rare earth elements (REE) are a set of seventeen metallic elements.
- These include the fifteen lanthanides on the periodic table plus scandium and yttrium.

- Rare earth elements are an essential part of many high-tech devices.

REE in India:

Some REEs are available in India — such as Lanthanum, Cerium, Neodymium, Praseodymium and Samarium, etc. Others such as Dysprosium, Terbium, and Europium, which are classified as HREEs, are not available in Indian deposits in extractable quantities.

Need of Rare Earth Metal:

- Rare earth minerals are essential to many high-tech manufacturing processes and are used in electric vehicles, wind turbines, portable electronics, microphones and speakers.

Significance of the development:

- Sweden currently holds the rotating presidency of the European Union and is a country seen as a key part of the EU's strategy for self-sufficiency in key minerals.
- The European Commission considers rare earths to be among the most critical resources for the region.
- The vast majority of rare earths are currently mined in China.

CII BUSINESS CONFIDENCE INDEX IMPROVES IN Q3 FY23

© **CONTEXT:** The Confederation of Indian Industry Business Confidence Index (CII- BCI) has shown an apparent increase in the October-December 2022 quarter, indicating the optimism Indian industry and the country's economic resilience.

About the index:

- The index rose to the level of 67.6 during the quarter, up from 62.2 in the previous July-September 2022 quarter.
- The Index is based on the findings of a survey of over 120 firms of varying sizes and across all industry sectors and regions of the country.
- Growth is expected to moderate further in the next year on global headwinds. Hence, to support growth, it is critical that RBI refrains from raising the interest rates any further.

- The latest first advance estimates of GDP for the current fiscal put the GDP print at 7 per cent.
- Nearly half of the respondents (47 per cent) have indicated that they have already started feeling the impact of the policy rate hikes by the RBI on the overall economic activity, revealed the survey.
- High interest rates have impinged on private investment levels too.
- Currently most of the heavy lifting to support growth is being done by public capex, with private capex playing a supporting role.
- Even as global economic growth is witnessing headwinds due to the tightening financial conditions and geopolitical tensions, an overwhelming 73 per cent of the survey respondents expect only a moderate impact on the Indian economy.
- In addition to high borrowing costs, the prevailing heightened uncertainty has prevented firms from furthering their investment plans.

Key findings:

- The index presents an encouraging prognosis with **90 per cent feeling** that their company's investment cycle will recover during the next fiscal.
- **Around 52 per cent** expect recovery during the first half of the next fiscal while about **37 per cent** of them foreseeing a pickup in investments by the second half of the year.
- Nearly half of the survey respondents feel that the capacity utilisation levels in their companies would range **between 75-100 per cent** during the Oct-Dec quarter.
- It is encouraging to note that given its bearing on the overall economy, a recovery in the rural demand is eagerly awaited and about 60 per cent of the respondents feel that a pick-up in rural consumption will take place in the next fiscal.
- With a resumption of business activity, expectations for the Oct-December quarter have improved as majority of the respondents anticipate an increase in sales (60 per cent) and count of new orders (55 per cent).
- Consequently, the profit outlook for the quarter has strengthened as nearly half of the respondents (47 per cent) foresee an increase in profit margins, despite the majority of them indicating high input costs.

Confederation of Indian Industry (CII):

- It is a non-government, not-for-profit, industry-led and industry-managed organization.
- It was founded in 1895; its headquarters is in New Delhi.
- It works to create and sustain an environment conducive to the development of India, partnering industry, Government and civil society, through advisory and consultative processes

THE WORLD ECONOMIC FORUM AT DAVOS

◎ **CONTEXT:** The World Economic Forum, a non-governmental lobbying organisation has started annual meetings at Davos, Switzerland for the year 2023.

Background:

- It was established in 1971 as a not-for-profit foundation and is headquartered in Geneva, Switzerland.
- It is independent, impartial and not tied to any special interests.
- Formerly known as European Management Forum, in 1987 the name was changed to World Economic Forum.
- This meeting was held under the European Commission and European industrial associations to introduce the European firms to American management practices.
- Later, Klaus Schwab founded the World Economic Forum as a non-profit organization and conducted the annual meetings to draw European business leaders to Davos.
- Recent geopolitical dynamics and health emergencies imposed the centrality of shared values to work together and restore trust among the nations.
- From supply chain resilience infrastructure to vaccine equitable policy, WEF annual meeting of WEF has involved various stakeholders to curb the potential threats and attain the targets of SDGs.

About the World Economic Forum (WEF):

- The world economic forum is the international organization for public-private cooperation.
- The forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industrial agendas.
- The forum strives in all its efforts to demonstrate

entrepreneurship in the global public interest while upholding the highest standards of governance. Moral and intellectual integrity is the prime objective of its every action.

- Activities of the forum are shaped by a unique institutional culture founded on the stakeholder theory, which asserts that an organization is accountable to all parts of society.
- The institution carefully blends and balances the best of many kinds of organizations, from public and private sectors, international organizations and academic institutions.

Funding mechanism:

- The WEF is largely funded by its partnering corporations. These are generally global enterprises with annual turnover greater than \$ 5 billion.
- For these corporations, the WEF provides a platform to shape the future, accessing networks and experts to ensure strategic decision-making on the most pressing world issues. WEF also partners with public subsidies.

Why the meeting at Davos is significant?

- Davos brings together some **3,000 paying members** and selected participants, among whom are investors, business leaders, political leaders, economists, celebrities and journalists.
- This is going to be a five days discussion on global issues across **500 sessions**. However, its salience goes far beyond discussions on economic issues.
- In the past, it has been used as a location for pivotal international diplomacy as leaders are able to break tensions in the town.
- For instance, in **1988 Greece and Turkey avoided war**, when the two signed the now famous Davos Declaration.

India and World economic forum:

- With the world economic forum's **50th anniversary in 2022**, India is also celebrated its 35 years of collaboration with the forum, providing an opportunity for India to showcase its unified presence.
- World economic forum could provide a potential platform to project India as an important and relevant stakeholder in shaping global initiative. Also as an attractive destination in view of its robust economic growth and stable macroeconomic indicators.
- To mark 75 years of independence, 'Azaadi ka Amrit Mahotsav', DPIIT has taken initiative to have a consolidated presence at WEF, 2022.

GAVI FOREST AND ECO-SENSITIVE ZONES OF KERALA

- ◎ **CONTEXT:** As heated debates on buffer zones rage across the forest-fringe settlements in Kerala, the confusion on the impact of the buffer zone markings and resettlement reigns supreme among the residents in forest covered village at Gavi.

About the Gavi Forests:

- Gavi is an Eco-Tourism project of the **Kerala Forest Development Corporation** located in the **Pathanamthitta district, Kerala**.
- Gavi is inside the **Ranni reserve forest**. Gavi is a part of Seethathode Panchayath in Ranni Taluk.
- Gavi is part of the **Periyar Tiger Reserve**, and the route can be covered by car from Vandiperiyar.
- The forests offer its visitors activities like trekking, wildlife watching, outdoor camping in specially built tents, and night safaris.
- Species found:** The mammals include elephant, tiger, Indian giant squirrel, jungle cat, sloth bear, Nilgiri tahr and barking deer among others.
- Gavi is also home to over 150 species of butterflies and 40 species of reptiles. The forest also has 140 species of orchids and 170 species of grass.

What are Eco-sensitive zones?

- As per the **National Wildlife Action Plan (2002-2016)**, issued by the Union Ministry of Environment, Forest and Climate Change, land within 10 km of the boundaries of **national parks and wildlife sanctuaries** are to be notified as eco-fragile zones or Eco-sensitive Zones.
- However, the general rule of a **10km boundary** may vary depending on the ecology of the land.

Areas beyond 10 km can also be notified by the Union government as ESZs, if they hold larger ecologically important "sensitive corridors".

Judgements regarding the Eco-sensitive zones:

- The Supreme Court order on June 3, 2022, to create a **one-kilometre Eco-sensitive Zone (ESZ)** within the boundaries of all wildlife sanctuaries, protected forest

lands and national parks has been mounting protests and criticism in the hilly regions of Kerala.

- A three-judge bench of Justices **L Nageswara Rao, BR Gavai and Aniruddha Bose** pronounced the judgement in a petition seeking the protection of forest lands in the Nilgiris district of Tamil Nadu.
- The judgement referred to the guidelines on buffer zones issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) of the Government of India on February 9, 2011.
- If the existing ESZ goes beyond the one-kilometre buffer zone or if any statutory instrument prescribes a higher limit, then such an extended boundary shall prevail.

The issue in Kerala:

- The total extent of the wildlife sanctuaries in Kerala is eight lakh acres.
- If one km of ESZ is demarcated from their boundaries, around **4 lakh acres of human settlements**, including farmlands, would come within that purview and that would be a matter of sheer survival of lakhs of people.
- Due to the **high density of human population** around the forest lands, politicians and people are demanding that human settlements must be exempted from it.

INDIA NOW HAS 212 INDIGENOUS LIVESTOCK BREEDS AFTER ICAR-NBAGR REGISTERS 10 NEW ONES

- ◎ **CONTEXT:** The Indian Council of Agricultural Research (ICAR) has registered 10 new breeds of livestock species, including cattle, buffalo, goat and pig in last one year.

◎ ABOUT:

- The registration was done by **ICAR-National Bureau of Animal Genetic Resources (NBAGR)**.
- The process involves identification and surveying of these breeds through visits to the native areas.
- This has taken the **total number of indigenous breeds** to 212.
- The 10 new breeds includes:**
 - Three new cattle breeds (**Kathani, Sanchori, Masilum**),

- One buffalo breed (**Purnathadi**),
- Three goat breeds (**Sojat, Karauli, Gujari**) and
- Three pig breeds (**Banda, Manipuri Black, Wak Chambil**).
- Since 2010, this is the **third highest increase** in registration of indigenous breeds, after 15 new breeds in 2018-19 and 13 new breeds in 2019-20 were recorded.
- In 2010, there were only 129 indigenous breeds registered, called '**extant breeds**'.

The Indian Council of Agricultural Research (ICAR):

- The Indian Council of Agricultural Research (ICAR) was established on 16 July 1929 as a registered society under **the Societies Registration Act, 1860**.
- It is an autonomous organisation under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India.
- It is headquartered **at New Delhi**.
- It is the **apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country**.
- The ICAR has played a pioneering role in ushering Green Revolution and subsequent developments in agriculture in India through its research and technology development that has enabled the country to increase the production of food grains by 5.6 times, horticultural crops by 10.5 times, fish by 16.8 times, milk by 10.4 times and eggs by 52.9 times since 1950-51 to 2017-18.

SPECIES IN NEWS

Greater Scaup



The species are seen after 90 years in Loktak Lake, Manipur.

About:

- The Greater Scaup is a medium-sized diving duck species that belongs to the family of Anatidae.
- Greater Scaup, locally known as Sadangman, was recently sighted in Loktak Lake in Manipur's Bishnupur district after a gap of over 90 years.
- Males have black breast, medium gray back, white sides, and yellow eye.
- Head appears black with a greenish sheen in good lighting, never purplish. Females are brown overall, grayer on body in winter, with white patch at base of bill and yellow eye.
- Very similar to Lesser Scaup; note smoothly rounded head without tall peak, puffer cheeks, more extensive white stripe on wing in flight, and larger, broader bill.

Spot Bellied Eagle Owl



A wildlife team recently stumbled upon a '**Spot Bellied Eagle Owl**' for the first time in **Seshachalam forest**, and for the third time in Andhra Pradesh.

About the species:

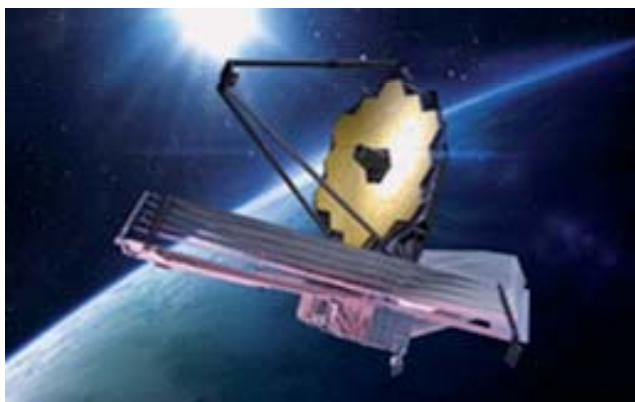
- Scientific Name:** *Bubo Nipalensis*
- The bird's habitat, found on large trees in thick forests, is spread across the Indian sub-continent.
- It is a bold predatory bird, measuring 20-25 inches in length and weighing between 1.5 kg and 2 kg, feeds on small rodents and lizards.
- The bird makes a **strange scream similar to humans** and it is hence called the '**Ghost of the Forest**' in India and '**Devil Bird**' in Sri Lanka.
- Protection status:** least concern

JAMES WEBB TELESCOPE DISCOVERS ITS FIRST EARTH-SIZED EXOPLANET

- ◎ **CONTEXT:** Recently, the National Aeronautics and Space Administration (NASA) announced that the James Webb Space Telescope has discovered its first new exoplanet named LHS 475 b, of the same size as Earth.

The James Webb Telescope:

- NASA's James Webb Space Telescope, the agency's successor to the famous **Hubble telescope**, launched on Dec. 25, 2021, on a mission to study the earliest stars and peer back farther into the universe's past than ever before.
- The James Webb Space Telescope is the largest, most powerful space telescope ever built.
- It is able to observe objects in our solar system from Mars outward, look inside dust clouds to see where new stars and planets are forming and examine the atmospheres of planets orbiting other stars.
- The James Webb Space Telescope will use its infrared cameras to see through dust in our universe.
- Stars and planets form inside those dust clouds, so peeking inside could lead to exciting new discoveries.
- It will also be able to see objects (like the first galaxies) that are so far away that the expansion of the universe has made their light shift from visible to infrared. Webb has a sun shield to protect its instruments and mirrors as the Webb telescope's cameras are sensitive to heat from the Sun.



What are exoplanets?

- Exoplanets are planets that orbit other stars and are beyond our solar system.

According to NASA, more than **5,000 exoplanets** have been discovered.

Scientists believe that there are more planets than stars as each star has at least one planet orbiting it.

Characteristics:

- They can be gas giants bigger than Jupiter or as small and rocky as Earth.
- They are also known to have different kinds of temperatures, from boiling hot to freezing cold.

The LHS 475 b exoplanet:

- It is located just 41 light-years away and the planet orbits very close to a red dwarf star and completes a full orbit in just two days.
- LHS 475 b is relatively close, 41 light-years away, and belongs to the constellation Octans.

Why they are studied?

- Studying exoplanets broadens our understanding of other solar systems and also helps us piece together information about our own planetary system and origin.
- However, the most compelling reason to learn about them is to find the answer to one of the most profound and thought-provoking questions of humankind.
- Finding out the distance between an exoplanet and its host star helps scientists determine if a discovered world is habitable or not.
- If an exoplanet is too close to the star, it might be too hot to sustain liquid water. If it's too far, it might only have frozen water.
- When a planet is at a distance that enables it to have liquid water, it is said to be in the "Goldilocks zone".

How they are discovered?

- Discovering exoplanets is quite tough as they are small and hard to spot around their bright host stars.
- Scientists rely on indirect methods, such as the transit method, which is measuring the dimming of a star that happens to have a planet pass in front of it.

CENTER FOR THE FOURTH INDUSTRIAL REVOLUTION (C4IR)

- ◎ **CONTEXT:** Recently, the World Economic Forum (WEF) has chosen Hyderabad, Telangana for establishing its Center for the Fourth Industrial Revolution (C4IR).

About the Centre of Fourth Industrial Revolution (C4IR):

- C4IR Telangana is the **18th center** to join the World Economic Forum's Fourth Industrial Revolution (C4IR) Network, which is **spread in four continents**.
- It will be an **autonomous non-profit organization** that will focus on healthcare and life sciences.
- The Centre for the Fourth Industrial Revolution in India (C4IR) was established in October 2018 to focus on the role of emerging technologies across different sectors and to plug the challenges that will emanate from Fourth Industrial Revolution.
- The three pillars on which C4IR work on are:
 - **4IR technologies** such as artificial intelligence, the internet of things, blockchain and others.
 - **Public-private cooperation**. For example: India recently announced drone services, an area where C4IR work with the Centre and several state governments.
 - **Multi-stakeholder partnership**. C4IR collaborates with various sectors —government, industries, start-ups, civil society, and consumers — for inclusiveness. The overall focus is to bring in greater social good by leveraging technologies.

Some prominent works of C4IR:

- C4IR have monitored vaccination programmes and built up the digital healthcare ecosystem.
- The Centre has developed a data ecosystem through a platform approach such as UPI (Unified Payments Interface) and Aadhaar. There are upcoming platforms as well, such as the one on logistics announced in the budget.

What is 'Fourth Industrial Revolution'?

- The fourth industrial revolution is conceptualized as an upgrade on the third revolution and is marked by a fusion of technologies straddling the physical, digital and biological worlds.

How will it be different from 3rd revolution?

- There are 3 reasons why today's transformations represent not merely a prolongation of the 3rd Industrial Revolution but rather the arrival of a 4th and distinct one: velocity, scope, and systems impact.
- The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the 4th is evolving at an exponential rather than a linear pace.
- Moreover, it is disrupting almost every industry in every country. And the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance.

Pros and cons of Fourth Industrial revolution:

■ Positives:

- World Economic Forum report on FIR concludes that it will have an undeniable impact on job scenarios across the world disrupting erstwhile, well-established businesses, bringing sweeping changes to labour markets, and changing business models on the foundation of emerging economic theories.
- Fourth Industrial Revolution has the potential to raise global income levels and improve the quality of life for populations around the world.
- In the future, technological innovation will also lead to a supply-side miracle, with long-term gains in efficiency and productivity.
- Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth.

Negatives:

- Revolution is likely to increase inequality in the world as the spread of machines increases markets and disrupts labour markets.
- Inequality represents the greatest societal concern associated with the Fourth Industrial Revolution.
- The largest beneficiaries of innovation tend to be the providers of intellectual and physical capital the innovators, shareholders, and investors which explain the rising gap in wealth between those dependent on capital versus labour.
- As automation substitutes for labour across the entire economy, the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labour.
- With this revolution, it is also possible that in the future, talent, more than capital, will represent the critical factor of production. This will give rise to a job market increasingly segregated into low-skill/low-pay and high-skill/high-pay segments, which in turn will lead to an increase in social tensions.
- The Fourth Industrial Revolution will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships.

DOPPLER WEATHER RADAR NETWORK

© **CONTEXT:** On the Occasion of 148th Foundation Day of India Meteorological Department (IMD), the Ministry of Earth Science has inaugurated the Doppler Weather Radar (DWR) Systems in Jammu & Kashmir, Uttarakhand, and Himachal Pradesh.

The Ministry of Earth Science is also preparing to cover the entire Country the Doppler weather radar network by 2025 for more accurate forecasts related to extreme weather events.

What are Doppler Weather Radars?

- Based on Doppler principle, the radar is designed to improve precision in long-range weather forecasting and surveillance using a parabolic dish antenna and a foam sandwich spherical radome.
- DWR has the equipment to measure rainfall intensity, wind shear and velocity and locate a storm centre and the direction of a tornado or gust front.

What is Radar?

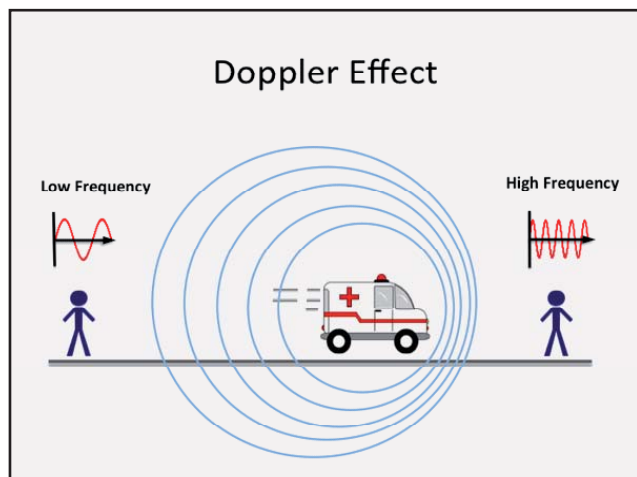
- Radar (Radio Detection and Ranging):**
 - It is a device which **uses electromagnetic waves in the microwaves region** to detect location (range

& direction), altitude, intensity and movement of moving and non-moving objects.

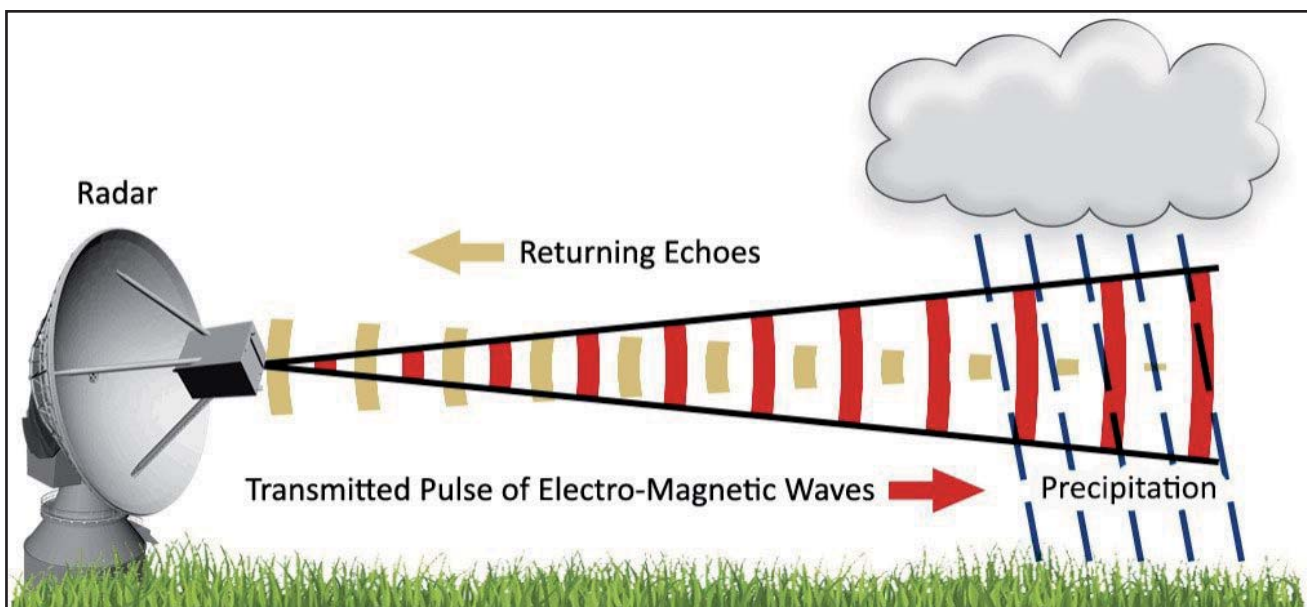
- Doppler Radar:**

- It is a specialized radar that uses the Doppler effect to produce velocity data about objects at a distance

Doppler Effect: When the source and the signal are in relative motion to each other there is a change in the frequency observed by the observer. If they are moving closer, frequency increases and vice versa.



- It does this by bouncing a microwave signal off a desired target and analyzing how the object's motion has altered the frequency of the returned signal.
- This variation gives direct and highly accurate measurements of the radial component of a target's velocity relative to the radar.



■ Types Of Doppler Radars:

- Doppler radar can be divided into **several different categories according to the wavelength which are L, S, C, X, K.**

X band radars:

They operate on a wavelength of 2.5-4 cm and a frequency of **8-12 GHz**. Because of the smaller wavelength, the X band radar is more sensitive and can detect smaller particles.

Application:

- These radars are used for **studies on cloud development** because they can detect the tiny water
- particles and also used to detect light precipitation such as snow.
- X-band radars also attenuate (become less effective) very easily, so they are used for only very short-range weather observation.
- Due to the small size of the radar, it can therefore be portable like the Doppler on Wheels (DOW). **Most major airplanes are equipped with X band radar** to pick up turbulence and other weather phenomena.
- This band is also shared with some police speed radars and some space radars.

Section: D

(QUICK BYTES)

CURRENT AFFAIRS

FSSAI SETS STANDARDS FOR BASMATI RICE

- ◎ **CONTEXT:** In a bid to promote the business around basmati rice, the Food Safety and Standards Authority of India (FSSAI) notified standards for basmati rice.

About the initiative:

- It is going to be enforced from August 1, 2023.
- Aim: FSSAI hopes that the standards would protect consumer interest and ensure the basmati rice sold in the market has the characteristic fragrance identified with this variety and is free from artificial fragrances and colouring.
- It also set standards on parameters such as average size of grains and their elongation ratio after cooking.
- It has set the maximum limits for moisture, amylose content, uric acid, damaged grains and presence of non-basmati rice.
- The standards are applicable to brown basmati rice, milled basmati rice, parboiled brown basmati rice and milled parboiled basmati rice.

Significance:

- Basmati rice is exported out of India and had an annual forex earning of Rs.25, 053 crore during 2021-22.
- India accounts for two-thirds of the global supply of basmati rice, according to FSSAI.

The Basmati Rice variety:

- Basmati rice is cultivated in the Himalayan foothills of the Indian subcontinent.
- The specific agro-climatic conditions, processing techniques such as harvesting and ageing are said to make this rice unique.
- In India, rice grown in specific parts of **Punjab, Haryana, Himachal Pradesh, Delhi, Uttarakhand, Uttar Pradesh and Jammu & Kashmir** can be labelled as basmati.

Do you know?

- Basmati rice is just one of the thousands of rice varieties available in India. However, this fragrant rice has invited the most controversy.

In 2020, India's application for a **geographical indication tag** recognised in the European Union market was put on hold after Pakistan opposed the move.

GANGA VILAS SAILS AS VARANASI-DIBRUGARH CRUISE

- ◎ **CONTEXT:** The Prime Minister is set to flag off the Ganga river cruise from Varanasi.

◎ ABOUT:

- **Named as:** The **Ganga Vilas**.
- The cruise will cover 3,200 km, crossing 27 river systems from **Varanasi to Dibrugarh in Assam**.
- The 51-day cruise, being pitched as the **world's longest river cruise**, is expected to reach its final destination — Dibrugarh in Assam, **on March 1**.
- The **Ministry of Ports, Shipping and Waterways** is the coordinator of this ship tourism project.

Key Features:

- The voyage is packed with visits to **50 tourist spots**, including World Heritage spots, national parks, river ghats, and major cities like Patna in Bihar, Sahibganj in Jharkhand, Kolkata in West Bengal, Dhaka in Bangladesh and Guwahati in Assam.
- The famous sites will include; the famous Ganga Arti in Varanasi, the Buddhist site of Sarnath; and even Majuli, the largest river island in Assam.
- The travellers will also visit the **Bihar School of Yoga** and Vikramshila University.
- The cruise will traverse through the Sunderbans in the Bay of Bengal delta, as well as the Kaziranga National Park.
- The vessel has **three decks, 18 suites** on board with a capacity of **36 tourists**, with all the luxury amenities.
- It will cost approximately **Rs.25, 000 per person per day**.

Significance:

- It will develop river cruise tourism in the country, generate employment opportunities and river tourism circuits will be developed and integrated with the existing tourism circuits for maximum exposure and rapid development of this sector in the country.

NATIONAL STARTUP DAY

- ◎ **CONTEXT:** On National Startup Day, it is indeed a moment to celebrate that roughly half of all recognised startups in India are now based in Tier II and Tier III cities.

National Startup Day:

- In 2022, Prime Minister Narendra Modi announced January 16 as the National Startup Day, to celebrate the spirit of the Indian startup ecosystem.
- The importance of January 16 is that it was the founding day of the Startup India initiative.

About Startup India Initiative

- Startup India is a flagship initiative of the Government of India, intended to catalyse startup culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India.
- To mark the occasion, the Department for Promotion of Industry and Internal Trade (DPIIT) is also organizing the Startup India Innovation Week from January 10-16.
- While the DPIIT heads the initiative, five government departments — the **Department of Science and Technology (DST)**, **Department of Biotechnology (DBT)**, **Ministry of Human Resource Development (MHRD)**, **Ministry of Labour and Employment**, **Ministry of Corporate Affairs (MCA)**, and **NITI Aayog** — are primarily responsible for the initiatives under Startup India.

INDIA'S FIRST CENTRE OF EXCELLENCE TO BE SET UP IN SHILLONG

- ◎ **CONTEXT:** The Centre has released country's first Centre of Excellence (CoE) for online gaming would be set up in Meghalaya's Shillong by March this year.

About the initiative:

- The CoE will be set up under **Digital India Startup Hub** through the **Software Technology Parks of India (STPI)**.

- The STPI was set up in 1991 as **an autonomous society** in the field of Science and Technology under the MeitY.
- The MeitY has set a target to skill around 60,000 youth in **Tripura and 35,000 in Nagaland under PMKVY 4.0**.
- **Recent developments:**
- The government has implemented various projects for the development of the **North-East region**.
- In a move to accelerate connectivity with the region, the government has set a target of **500 days** to provide complete telecom connectivity in the region by end of 2023.

NORTHEAST TO HOST 'B20' PROGRAMMES TO PROVIDE PLATFORM FOR BUSINESS OPPORTUNITIES

- ◎ **CONTEXT:** The Confederation of Indian Industry (CII) has organised a series of 'B20' programmes in Manipur, Mizoram, Nagaland and Sikkim in partnership with the ministry of external affairs and North-eastern state governments.

About B20:

- The Business 20 (B20) is a group that represents the private sector within the Group of 20 (G20) Forum.
- **Objective:** The B20 was established to provide a platform for the business community to engage with the G20 and to offer recommendations on policies that can support global economic growth and development.
- **Significance:** It will showcase the potential that the Northeast region offers for investment for **global and local investors** and highlight opportunities for **multilateral business partnerships** in industry sectors where Northeast states have core strength.

Event organised:

- The B20 programme is scheduled from **February 17-19** in **Imphal** which would focus on information and communications technology (ICT), medical tourism, health care and handlooms.

- In Aizawl, it would be organised from **March 1-3** and it would focus on urban planning, infrastructure and skill development.
- From **March 16-19**, Gangtok would host a B20 programme focusing on tourism, hospitality, pharmaceutical and organic farming.
- From **April 4-6**, the programme would be organised in Kohima focusing on agriculture and food processing.

NOISE POLLUTION AFFECTS DOLPHINS' ABILITY TO COMMUNICATE: WHAT NEW STUDY SAYS

- ◎ **CONTEXT:** A new study has found that the Noise from large commercial ships, military sonars or offshore drilling can severely impact the well-being of dolphins.



About the study:

- A new study has found that noise generated by human activity makes it harder for dolphins to communicate and coordinate with each other.
- As the levels of underwater noise increase, these mammals have to "shout" to each other to communicate.
- Dolphins are social mammals that communicate through squeaks, whistles and clicks.
- They also use echolocation in order to locate food and other objects.
- Therefore, anthropogenic noise coming from large commercial ships, military sonars or offshore drilling can severely impact their well-being.

Consequences:

- Marine animals are known to use **sound to navigate, find food and protect themselves**.
- As sound travels faster in water than air, it makes for an important **mode of communication** because it can convey a lot of information quickly and over long distances.
- Scientists believe that fish species rely on **sounds during reproductive activities**, including mate attraction, courtship and mate choice.
- However, several studies and incidents have shown that sounds made by drilling, commercial ships and military operations lead to disruption of marine life.
- In 2020, Australia witnessed one of its worst mass stranding of whales when around 200 of them died on Tasmania's west coast.
- Researchers suggest that mass stranding is linked to noise pollution in oceans.

Dolphins: The Aquatic animal of India

- The Ganges River Dolphin or also called '**Susu**,' is the National Aquatic Animal of India.
- It is located in Bhagalpur district of Bihar, India and is among the oldest animals in the world.
- The newly launched **MV Ganga Vilas cruise**, which will make stops at about 50 tourist and heritage sites along the Ganga and Brahmaputra river systems, could severely damage the habitat of the Ganges river dolphin, which already faces a number of threats, including water pollution and poaching.

INDIA'S POPULATION HAS ALREADY OVERTAKEN CHINA'S

- ◎ **CONTEXT:** According to estimates from the World Population Review, India may have already surpassed China as the world's most-populous nation.

About the Report:

- The **South Asian nation's population** stood at 1.417 billion as of end 2022.

- China has announced the first population decline since the 1960s.
- The United Nations had expected the milestone to be reached later this year.
- As of January 18, India's population had already climbed **to 1.428 billion**.
- India's rapid economic growth pre-Covid and its relatively strong recovery from the pandemic, about 800 million people still rely on free food rations from the government, the largest program of its kind in the world.
- The eggs found measures **15-17 centimetres** in diameter.
- They were found during field investigations in the **Dhar district of Madhya Pradesh** between 2017 and 2020.
- They are found in **Lameta exposure** (is a sedimentary rock formation known for its dinosaur fossils).
- The eggs belonged to **six species**, suggesting a higher diversity of these extinct giants in India.

Is India's Population really increasing?

- Yes, India's population is increasing with the world accordingly; however, there is an element of skewed growth within the nation.
- The overall growth rate of India's population will remain stagnant in the upcoming decades. The evidence can be drawn from:
- A Replacement fertility rate of 2.1 has been achieved for most of the States in India.
- Emerging Health challenges and Pandemics.
- Awareness and Family planning Technique
- Gender-equal norms are prevalent as a sign of social transformation.
- Lack of affordability among most middle-income families for more children.

RARE DINOSAUR EGGS FOUND IN NARMADA VALLEY

- ◎ **CONTEXT:** A group of Indian researchers found rare cases of fossilised dinosaur eggs —among 256 newly discovered eggs from the Narmada Valley.

About the study:

- The findings of the study are published in the journal *PLoS One* January 18, 2023.
- The discovery suggests that **Titanosaurs** — one of the largest dinosaurs to have roamed the Earth — displayed a notable reproductive trait **unique to modern-day birds**.
- The egg has two yolks; this feature can be seen in birds, suggesting they share similar reproductive traits.

SALTIE CENSUS 2023

- ◎ **CONTEXT:** According to the annual reptile census, the population of saltwater crocodiles in the water bodies of Bhitarkanika National Park and its nearby areas in Odisha's Kendrapara district has marginally increased in 2023.

About the Census:

- The total count of crocodiles remained **at 1,793**.
- These included **20 whitish individuals**. Last year, officials had sighted 1,784 reptiles.
- The peak winter, exposure of more **than 50 per cent** of mud banks and the lunar cycle are suitable periods for counting the reptiles.

The crocodile species found in India:

- India is home to three crocodile species – **Gharial, Mugger, and Saltwater Crocodile**.
- Usually spotted on banks of the aquatic systems, crocodiles are cold-blooded animals that spend a large part of their day basking under the sun.
- ◎ **Threats:**
 - Crocodiles too are facing threats due to climate change, habitat degradation, irreversible development activities, and illegal poaching.
- In order to conserve crocodiles in the wild, the Government of India initiated the **Crocodile Conservation Project in 1975** to rebuild the crocodilian population.
- Numerous breeding centres have been established along their native habitat that rear hatchlings and reintroduce them upon maturity.
- Other action interventions, including building of artificial nesting and basking sites, are also being carried out.

The saltwater crocodile:

- It is also the largest reptile in the world. The species inhabits a few coastal regions in India including **Odisha, West Bengal, and the Indian Islands.**
- A long and powerful tail, webbed digits, and powerful

jaws make the animal an excellent predator in aquatic habitats.

- **Protection status:**

- It has been listed as **Least Concern** on the IUCN Red List since 1996.

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