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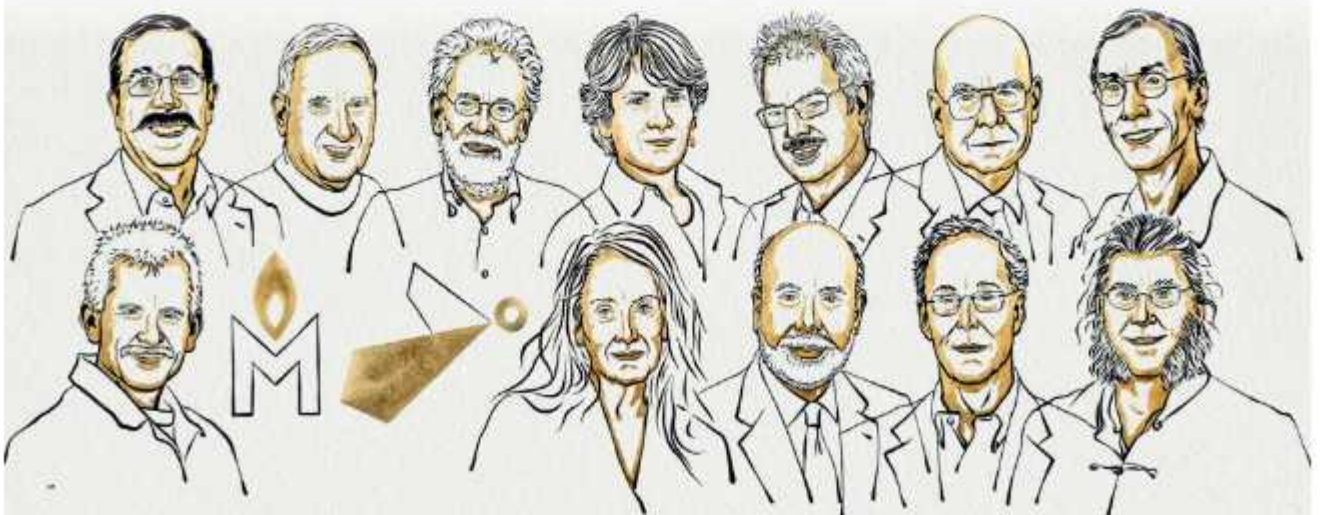


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Year : 4 | No. : 20 | October 2022 / Issue-2 | Price : ₹ 55



- Supreme Court's Decision on Abortion Rights and Marital Rape Will have Far-Reaching Implications.
- Evaluation of the Role of Make In India Initiative in the Last 8 Years.
- Semiconductor Industry in India: Status and Prospects.
- India-Japan Relations: Strong Link Between the Power Equations of Indo-Pacific.
- Will the Appointment of New CDS Lead to the Theaterisation of Armed Forces.
- Judicial Transparency is the Need of the Hour: Live Streaming the Proceedings of the Supreme Court.
- Increasing Risk of Glacier Break in Himalayan Ecosystem: Challenges, Identification and Researches by Scientific Institutions.



Why Perfect-7 Current Affairs Magazine?

1. First of all, Perfect-7 Current Affairs Magazine is published **every 15 days** to keep students up-to-date with current affairs, while other coaching institutes have monthly magazines which aggregate the current affairs of the month. Due to large number of current affairs, students are often unable to read all the articles. Eventually they become dependent on annual and half yearly magazines.
2. Perfect-7 magazine has been created keeping in mind the **UPSC and State PCS centric exams**, whereas the magazines of other coaching institutes include unnecessary and extra material in the name of UPSC and State PCS exams, causing confusion among the students.
3. **Perfect-7 magazine has 7 editorial articles by subject experts on important events during 15 days, 42 articles on important events, 7 brain-boosters in creative style, current affairs, one liner, preliminary and mains exam related questions etc.** are given. Along with this there is also a section on eminent personality which shows the contribution of the historical personality towards the country and society. In this way, no important information and news is missed in the period of 15 days for UPSC and State PCS exams.
4. Along with this, through the **case study section**, students learn about the situations, an officer has to face during his tenure and what could be the possible solution.
5. Perfect-7 Current Affairs Magazine, helps students to prepare well for DhyeyaIAS's most important exam program **PMI (Pre + Mains + Interview)**.
6. In current affairs based classes, preparation is done through Perfect-7 Magazine, which enables quality preparation of the students.
7. Perfect-7 magazine becomes available to students on **10th and 25th of every month**, whereas current affairs magazine provided by other institutes are of the previous month and they create confusion in the minds of students by mentioning the current month of publication.
8. Perfect-7 Magazine contains prelims and mains exam focused mock questions through which students can make their preparation more precise.



Important Issues

6-22

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 2. Evaluation of the role of the Make in India program during the journey of the Last 8 years
 3. Semiconductor Industry in India: Status and Prospects
 4. India-Japan relations: Strong link between the power equations of Asia-Pacific and Indo-Pacific
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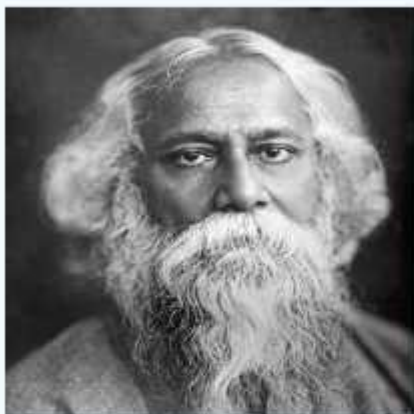
Vinay Kumar Singh
Founder
Dhyeya IAS

Current Affairs has an important role in the examinations conducted by Union Public Service Commission and State Public Service Commissions. It is necessary for the candidate to have knowledge of relevant information on issues of national and international importance. Perfect 7 Magazine is being presented fortnightly to the students to fulfill this requirement. Preparation of civil services exam is only completed when candidates have holistic knowledge and analysis of the dynamic nature of the current affairs. 'Perfect7' keeps this vision and approach and understands the multidimensional need of students at the content level, so this magazine has presented the current affairs with relevant issues of general studies. Keeping in mind the needs of mains exam, current articles on 7 burning issues, Ethics Case Studies, Biographies of important personalities, coverage of most useful topics of various sections of General Studies and the most important current affairs issues are being covered for Preliminary Examination in which emphasis is being given on national, international, environment, ecology, art and culture, science and technology, economic issues.

Brain boosters with 7 themes based graphics are being presented in a concise form to enhance the conceptual understanding of the students. Apart from this, updated information on Global Initiatives, Global Institutions, Structure of Organizations, Functioning, Important Reports, and Indices will be included in this magazine, which is asked prominently in the Civil Services Examination. To give emphasis on facts and analysis, keeping in view the trends of new nature of questions in Preliminary and Main Examination of Civil Services, an inclusive magazine is being provided to the students so that they can give the right direction to their preparation by understanding the new requirements of Civil Services Examination. Columns have been included in the format of the magazine keeping in mind the factual needs of the candidates, mental development, developing writing technique etc. Along with this, we have been introducing new segments according to the changing needs of the candidates and these initiatives will continue in future also. Hope this issue will prove useful for all of you. Your suggestions are always welcome.

Best wishes.

Self-revelation



Rabindranath Tagore

Intro

Goodness is the freedom of our self in the world of man, as is love. We have to be true within, not for worldly duties, but for that spiritual fulfillment, which is in harmony with the Perfect, in union with the Eternal. If this were not true, then mechanical perfection would be considered to be of higher value than the spiritual. In order to realize his unity with the universal, the individual man must live his perfect life which alone gives him the freedom to transcend it.

Perfection has its two aspects in man which can to some extent be separated, the perfection in being and perfection in doing. It can be imagined that, through some training or compulsion, good works may possibly be extorted from a man who personally may not be good. Activities that have fatal risks are often undertaken by cowards even though they are conscious of the danger. Such works may be useful and may continue to exist beyond the lifetime of the individual who produced them.

And yet, where the question is not that of utility but of moral perfection, we hold it important that the individual should be true in his goodness. His outer good work may continue to produce good results, but the inner perfection of his personality has its own immense value, which for him is spiritual freedom and for humanity is an endless asset though we may not know it.

For goodness, represents the detachment of our spirit from the exclusiveness of our egoism; in goodness we identify ourselves with the universal humanity. Its value is not merely in some benefit for our fellow beings, but in its truth itself through which we realize within us that man is not merely an animal, bound by his individual passions and appetites, but a spirit that has its unfettered perfection. Goodness is the freedom of our self in the world of man, as is love. We have to be true within, not for worldly duties, but for that spiritual fulfillment, which is in harmony with the Perfect, in union with the Eternal. If this were not true, then mechanical perfection would be considered to be of higher value than the spiritual. In order to realize his unity with the universal, the individual man must live his perfect life which alone gives him the freedom to transcend it.

Doubtless Nature, for its own biological purposes, has created in us a strong faith in life, by keeping us unmindful of death. Nevertheless, not only our physical existence, but also the environment which it builds up around itself, may desert us in the moment of triumph; the greatest prosperity comes to its end, dissolving into emptiness; the mightiest empire is overtaken by stupor amidst the flicker of its festival lights. All this is none the less true because its truism bores us to be reminded of it.

And yet it is equally true that, though all our mortal relationships have their end, we cannot ignore them with impunity while they last. If we behave as if they do not exist, merely because they will not continue forever, they will all the same exact their dues, with a great deal over by way of penalty. Trying to ignore bonds that are real, albeit temporary, only strengthens and prolongs their bondage.

The soul is great, but the self has to be crossed over in order to reach it. We do not attain our goal by destroying our path. Our teachers in ancient India realized the soul of man as something very great indeed. They saw no end to its dignity, which found its consummation in Brahma himself. Any limited view of man would therefore be an incomplete view. He could not reach his finality as a mere Citizen or Patriot, for neither City nor Country, nor the bubble called the World, could contain his eternal soul.

Bhartruhari, who was once a king has said: "What if you have secured the fountain-head of all desires; what if you have put your foot on the neck of your enemy, or by your good fortune gathered friends around you? What, even, if you have succeeded in keeping mortal bodies alive for ages-tatah kim, what then?"

That is to say, man is greater than all these objects of his desire. He is true in his freedom.

National

Supreme Court's Decision on Abortion Rights and Marital Rape Will have Far-Reaching Implications

Context:

Recently, the Supreme Court, in the context of a suit, held that any woman, irrespective of her marital status, has the right to safe and legal abortion under the Medical Termination of Pregnancy Act.

Introduction:

Sometime back, a 25-year-old unmarried pregnant woman filed a petition before the Delhi High Court requesting that she be allowed an abortion within 24 weeks in case of failure of their relationship, but the Delhi High Court dismissed the petition by saying Dismissed the Medical Termination of Pregnancy Act does not cover unmarried women. Against this order of the High Court, the woman challenged Section 3B of the Medical Termination of Pregnancy Rule, 2003 in the Supreme Court. In this context, a recent decision of the Supreme Court (bench of Justice DY Chandrachud, Justice JV Pardiwala, and Justice AS Bopanna) has come.

Key points of the decision given by the Supreme Court:

The Supreme Court said that

- Discrimination of women based on marriage is outright 'artificial and constitutionally unsustainable' and it promotes the stereotype that only married women have the right to be sexually active. Hence there cannot be restrictions on the right of a woman to abortion based on her marital status. Consequently the Supreme Court also allowed unmarried women to have an abortion within 24 weeks of unwanted pregnancy.
- Preventing a single woman or an unmarried woman from having an abortion is a violation of her fundamental rights.
- There is a need to amend the rules of the Medical Termination of Pregnancy Act and include women irrespective of their marital status (married, unmarried, live-in relation) in the category of women entitled to an abortion.
- In the amendment made in the MTP Act in 2021, the word 'partner' was used instead of the word

'husband'. This makes it clear that this law also applies to unmarried women.

- The impact of an unwanted pregnancy cannot be ignored, it not only affects the health of the woman but also affects 'the rights of the fetus.'
- Social reality should also be explained in the Medical Termination of Pregnancy Act.
- While delivering the judgment, the Supreme Court quoted the parliamentary debate on data from the Global Health Study by British Medical Journal and said that about 67 percent of abortions in India are unsafe. Further, the court said that denying the right to legal and safe abortion promotes unsafe abortion.
- Pregnancy up to 24 weeks is a natural right of any woman and each woman's social, economic, and cultural status is different, which plays a significant role in pregnancy.

While commenting on the right to abortion of rape victims, the Supreme Court observed that-

- Married women may fall under the category of 'Survivors of Sexual Assault' too and it is possible for a married woman to conceive (even if by the husband) when the intercourse took place against her will;
- The Medical Termination of Pregnancy Act should define marital rape along with rape.
- Both the Medical Termination of Pregnancy Act and the Protection of Children from Sexual Offences Act should be read together. It will give advantage to the minors and they will not be required to disclose their identities under Medical Termination of Pregnancy Act.

Impact of this decision

- This decision given by the Hon'ble Supreme Court will guide a progressive society where the individual rights of women will increase.
- This judgment is significant as the Supreme Court has recognized the problem of marital rape. In this context, it affirms the right of married women over their bodies.
- This decision will protect the rights of single women,

women in a live-in relationship, and married women who have involuntary pregnancies.

- It will not only protect the rights of women but will also protect the unwanted fetus from the social stigma that it would have to bear after its birth.
- SDG 3.1 is related to reducing the maternal mortality ratio, while SDG 3.7 and SDG 5.6 are related to sexual and reproductive health and universal access to rights. This decision will be useful in achieving these goals.
- It will also help reduce the population and promote family planning.
- This decision will weaken the institution called marriage, which can see a massive change in social structure.
- There is also a possibility that this may lead to hike in live-in relations, and extramarital affairs, the issues which are still inappropriate to a large chunk of society.
- It is a decision to protect the health, mental state, and rights of women, which will certainly have far-reaching implications.

Medical termination of pregnancy act:

This act was passed keeping in view the progress made in the field of medical science regarding safe abortion. After 1971, amendments were made in 2021 for safe and legal abortion services on medical, curative, humane, or social grounds to ensure universal access to comprehensive care for women.

Important Provisions:

- Under the act, in case of failure of a contraceptive method or device, a pregnant woman can terminate her pregnancy up to 20 weeks.
- The Act uses the word 'partner' in place of 'husband', making it clear that the Act also allows unmarried women to terminate a pregnancy which was caused due to failure of a contraceptive method or device.
- For termination of pregnancy up to 20 weeks, the opinion of one registered doctor and for termination of pregnancy up to 20-24 weeks, the opinion of two registered doctors will be necessary.
- For termination of pregnancy after 24 weeks, it will be necessary to take the opinion of the state-level medical board.
- Provision has been made to increase the limit of gestation period from 20 to 24 weeks for seven categories of pregnancies for women.
 - » In case of sexual assault/rape

- » Minor
 - » Widow and divorce (pregnancy at the time of change in marital status)
 - » Physically handicapped women
 - » Mentally ill women
 - » Fetal malformation
 - » Pregnant women in emergencies.
- This Act, keeping in view the confidentiality of women, provides that the name and other details of the woman who has gone through abortion, shall not be disclosed to anyone except the person authorized in the present law.

Other Fact

- Abortion is the termination of pregnancy before the period of maturity or viability in which the embryo is either removed or it is automatically expelled from the uterus.
- Abortion was illegal in India until the 1960s, and a woman was subject to three years imprisonment and/or fine under Section-312 of the Indian Penal Code (IPC).
- The Shantilal Shah Committee was formed by the government in the mid-1960s to aid the government in legislating the laws regarding abortion. Based on this report, the Medical Termination of Pregnancy Act, of 1971 was brought.
- There are about 16 countries all over the world where abortion is not only prohibited but also criminalized.
- Section 375 of the IPC defines acts of rape by a man. There are exceptions to this—section 375(2) states that "sexual intercourse or sexual act by a man with his wife if the wife is not less than fifteen years of age, is not rape". That is, this act considers marital rape free from crime.

Conclusion:

Excluding the early times of ancient India, we find that women have historically been given second-class status. A woman was identified as a mother, wife, sister, and daughter and not as a woman. But at present, the recognition of women as women has increased. Reservation of women, decriminalization of section 497 of the Indian Penal Code, and recent decisions have been successful in increasing the rights of women while attacking patriarchy. These decisions are paving the way for a progressive Society

National

Evaluation of the Role of Make In India Initiative in the Last 8 years

Context:

The Make in India program launched by the Government of India in 2014 has completed 8 years.

Introduction:

The 'Make in India' program was launched by Hon'ble Prime Minister Shri Narendra Modi on 25 September 2014 to promote manufacturing for transforming India into a global hub of significant investment and manufacturing, infrastructure, and innovation. 'Make in India' mainly focuses on the manufacturing sector but also aims to promote entrepreneurship in the country. Its vision is to create a conducive environment for investment, and modern and efficient infrastructure, opening up new areas for foreign investment and building a partnership between government and industry. Make in India has made substantial achievements in 27 sectors. These also include the strategic sectors of manufacturing and services. This scheme is playing a significant role in the making of New India.

The objective of Make in India

- To increase the growth rate of the construction sector by 12-14% per annum in the medium term
- Increase the share of manufacturing sector in the country's GDP from 16% to 25% by 2022
- To create 100 million additional employment opportunities in the manufacturing sector by the year 2022
- Building appropriate skills among rural migrants and urban poor for an inclusive growth
- Increase in domestic value addition and technical depth in manufacturing
- Increasing the global competitiveness of the Indian manufacturing sector
- Ensuring the sustainability of development, especially concerning the environment

Progress of Make in India: Journey of 8 Years

The Make in India project has made commendable progress in the last 8 years. Through this, not only the economic variables have increased, but it has supported

other sectors too. The description of this is as follows -

Growth in economic variables:

- **Status in global economies:** According to IMF, India's economy was 10th in 2014 with a GDP of \$2.05 trillion, but in 2022, India's economy has overtaken Britain to 5th place. During this period, India's GDP has reached 3.5 trillion dollars.
- **Foreign Direct Investment inflows:** FDI inflows into India stood at US\$ 45.15 billion in 2014-2015. Whereas in the year 2021-22, it has reached 83.6 billion US dollars, which is the highest ever.
- **Ease of Doing Business:** India has progressed from 142nd place in 2014 to 63rd place (2020) in this index, which is released by the World Bank. However, for some reason, this index is no longer published.
- **Export Growth:** India's exports were \$468 billion in 2014, which has increase to about \$650 billion in 2022. India's export of toys has registered a tremendous growth of 636% in April-August 2022 as compared to the same period in 2013.
- **Increase in Patents:** Manufacturing is often a partner of innovation. The growth of manufacturing with the advent of the Make in India project has given a fillip to innovation. There has been a 50% increase in the number of patents filed by India globally in the last seven years. This number increased from 42763 in 2014-15 to 66440 in 2021-22.

Support to other sectors:

- **Digital Governance:** National Single Window System was launched in September 2021 for quick approval and permission to investors. In this system, many existing clearance systems of various Ministries/Departments of the Government of India and State Governments have been integrated.
- **Multimodal connectivity:** Connectivity plays an important role in the growth of the manufacturing sector. Keeping this in mind, the Prime Minister's Gati Shakti program was launched. It will aid manufacturing by ensuring haulage-related

efficiency in business operations through the creation of infrastructure that improves connectivity.

- **Importance of Regional Products:** To increase manufacturing, one product from each district was identified which is known as 'One District One Product'. The objective is to facilitate the promotion and production of indigenous products in each district of the country. It will not only boost manufacturing but also provide a global platform to artisans and manufacturers of handloom, handicrafts, textiles, and agricultural and processed products from different regions of the country.
- **Skill Development:** With the growth of manufacturing in the country, there is also a need for skilled employment. For this, the Pradhan Mantri Kaushal Vikas Yojana was implemented.
- **Promoting allied sectors:** To promote manufacturing, the concept of the Production Linked Incentive was introduced in 14 sectors including semiconductors. It proved to be very helpful in increasing production.

description of the challenges in the path of Make in India are as follows -

- **Corona Pandemic:** Due to the lockdown during the corona pandemic, there was a situation of economic crisis in the whole country. This pandemic also hampered the pace of Make in India, affecting many sectors including logistics, and manufacturing.
- **Shell Companies:** Most of the foreign direct investment in India comes from Singapore and Mauritius. These are tax haven nations. There are doubts about the shell companies here that they are only re-investing black money in India. Thus the arrangement of round-tripping is a big challenge for Make in India.
- **Volatile financial market:** A while ago, as the interest rates in America increased, American investors withdrew money from India. The US ranks second in FDI investment in India. This type of instability is also a hindrance in the path of Make in India.
- **Infrastructure Gap:** There is an infrastructure gap in India. Energy security is essential for scaling up



Obstacles in the success of Make in India:

Even though after Make in India, the rate of investment growth, increased. However the rate of production growth decreased while the unemployment rate increased in the country, which questions the success of Make in India. Hence it fell behind in achieving its goals. The

manufacturing. Whereas India is still one of the energy deficit countries. It not only affects Make in India but is also responsible for the twin deficit of the country.

- India has been ranked 44th out of 160 countries in the Logistics Performance Index (LPI) released

by the World Bank. While Asia's Singapore was ranked seventh, China 26th, and Malaysia 41st.

- » Average turnaround time of a ship in Singapore was less than a day while in India it was more than 2 days.
- » Average speed in India is around 60 km per hour whereas in China it is about 100 km per hour.
- **Corruption:** The problem of corruption and red tapism is also a hindrance in the path of Make in India.
- **Saving propensity of Indians:** According to the Economic Survey 2018, the tendency of saving among Indians also reduces the demand.

Government's efforts in mitigating the challenges of Make In India:

- The ambitious Atmanirbhar Bharat project was brought by the government in 2020 to deal with the effects of the corona pandemic and to take the country towards self-reliance.
- The government is working on projects like industrial corridors, smart city projects, metro and bullet trains in the country. To increase the infrastructure, work is being done on projects like National Infrastructure Pipeline, Bharat Mala, and Sagar Mala.
- Many sectors have been opened up for automatic routes under foreign direct investment by the government. The FDI limit has been raised to 74% by automatic route through liberalizing the defense sector. 100% FDI has been allowed in construction, operation, and maintenance in the defense sector, and rail infrastructure projects for state-of-the-art

technology. Simultaneously, the sector of insurance and medical devices has also been liberalized.

- Many rules and procedures have been simplified by the government to simplify the process of doing business in India and many items have been removed from the license requirements.
- In the National Workshop held in 2014, industry-related ministries are working on specific targets for each sector. These targets have been fixed after talking to various stakeholders. Under this initiative, each ministry has identified action plans for the next one and three years.
- An Investor Facilitation Cell has been constituted in 'Invest India' to promote investment. An experienced team has also been arranged to assist new investors.

Conclusion

- Make In India is a very ambitious project which has led to several innovative initiatives to increase investment and trade in the country, protect intellectual property, promote innovation, and create world-class manufacturing infrastructure in the country. This initiative has made the entire process of doing business in India easy. The new de-licensing and easing measures have significantly reduced the complexity while they have increased speed and transparency in the overall process. Although there are some challenges before it, if the government succeeds in reducing those challenges, then Make in India will prove to be the flag bearer for India's development path.

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Technology

Semiconductor Industry in India: Status and Prospects

Context:

Recently, Central government made comprehensive changes in its scheme for development of semiconductor and display manufacturing ecosystem.

Introduction:

India is striving to grow its semiconductor industry to give impetus to electronics manufacturing. India aims to become a global hub for semiconductor design, manufacturing, and technology development. But the lack of semiconductor chips has emerged as a major problem for this goal. In the context of this challenge, the Government of India has recently approved a comprehensive change in its plan for the development of semiconductor and display manufacturing ecosystem. These changes are aimed at making the country's \$10 billion chip-making initiative more attractive to investors.

Major changes made by the Government of India:

- As per Indian Government's scheme to promote electronics manufacturing the Government of India is helping by providing 30% of the project cost for 45 to 65-nanometer chip production, 40% for 28 to 45 nanometers, and 50% for 28 nanometers or less. However, as per new changes, the government in its new scheme will provide a uniform financial assistance of 50% for all nodes.
- Simultaneously, the scheme includes provisions for 50% of financial assistance in the expenditure during supply chain stage of chip making and ATPM.
- Along with this, there will be more focus on the production of 45nm (nanometer) chips, which will save time and generate additional production. The technologies targeted under the plan will be discrete semiconductor fabs. Discrete semiconductors are used for basic electronic devices.

Status of the Semiconductor Industry in India:

- This semiconductor market is estimated to reach around \$100 billion by the year 2030.
- India is growing rapidly in the ICT industry. Along with this, as the nations are shifting towards the electric vehicles, the need for semiconductor chips, in these sectors has increased.
- Because of the importance of semiconductors, the

government is constantly trying to promote their production -

- » MeitY launched the Design Linked Incentive (DLI) scheme in 2021 to facilitate domestic companies engaged in semiconductor design to achieve a turnover of over Rs 1,500 crore over a period of 5 years.
- » The Central Government launched a Rs 76,000 crore scheme under the Production-Linked Incentive (PLI) scheme to promote the production of various semiconductor goods in India.
- » Vedanta and a Taiwanese chip maker Foxconn have signed a Memorandum of Understanding to set up a ₹1,54,000 crore semiconductor plant in Gujarat.
- » A \$3 billion plant in Karnataka by international consortium ISMC and a \$3.5 billion plant in Tamil Nadu by Singapore's IGSS Ventures represent the status of India's rapidly growing semiconductor industry.
- However, India is currently importing semiconductor chips. In the year 2021, India imported chips worth \$ 21 billion and this import is growing at the rate of 15 percent every year.

Why does the semiconductor industry needs to be promoted?

- In modern times, it is essential to promote electronics manufacturing to strike a balance between 'economic development and environmental protection' for sustainable development. Semiconductors serve as the brain for all modern electronics, information and communication technology products.
- Semiconductor is used in critical infrastructure like communication, power transmission, etc. All these sectors are not only essential for the public in the present times but are also crucial in national security.
- The development of the semiconductor and display ecosystem will have a multiplier effect in various sectors of the economy, including deeper integration with the global value chain.
- At present, there is little global competition in the manufacture of semiconductors, chips, and displays. The region is dominated by the United States, Taiwan, South Korea, Japan, and the Netherlands.

- Increased online activity due to the COVID-19 pandemic has led to the centrality of chip-powered computers and smartphones, to digitally enable people, thereby has increased the demand for semiconductors.

Challenges Before India's Semiconductor Industry:

- The manufacturing of chips, electrolyzers, and displays required by the semiconductor industry requires highly sophisticated technology and huge capital. Currently, India is far behind in comparison to its global rivals.
- Brain drain from India is a major obstacle to semiconductor innovation.
- Lack of manufacturing of chip fab in India is also a big problem. DRDO and ISRO have their fab but these institutes only manufacture chips for their requirement. There is only one old fab in India which is located in Mohali, Punjab. Building a fab also requires huge capital.
- The process of making semiconductor chips also requires gallons of pure water every day. At present, India is one among the water-stressed countries, and many districts of the country are drought-prone. In this situation, the supply of pure water to chip manufacturing companies is also a big problem.
- Even today the contribution of the public sector to India's innovation is high. The public sector contributes more than 60% to India's research and development sector. There are several problems like poverty, malnutrition, and unemployment before the Government of India, due to which the government is unable to finance more for innovation.
- Manufacturing of semiconductors in bulk will promote e-waste. This will lead to the problem of environmental degradation.
- Lack of adequate infrastructure, domestic supply chain and logistics, high financial costs, and inadequate supply of energy account for approximately 8.5 to 11 percent of losses.

India's semiconductor industry prospects

- India's private sector is growing rapidly and gradually increasing its contribution to innovation.
- At present the government is incentivising the manufacturing of semiconductors. Due to the recent changes made by the government, all phases of semiconductors in India will get incentives. The 'production link incentive' scheme implemented by

the government will help increase the semiconductor industry.

- India is now among the youngest countries in the world. Here the demand for automobiles, communication equipment, computers, and for national security, the demand for strategic electronic devices is increasing rapidly. Therefore, the manufacturers of semiconductor products in the country will get a large domestic market.
- The use of semiconductors in India is expected to cross US\$ 80 billion by 2026 and US\$ 110 billion by 2030.

Way forward :-

- The Government of India will have to connect electronics-related industries like automobiles, communication, etc. with the chip manufacturing ecosystem. This will not only strengthen the chain from production to consumption but will also develop national capacity.
- More capital is required to manufacture semiconductors and displays; However, the government is making efforts for this.
- The private sector, including the government, will have to cooperate on the development of all three components of chip manufacturing, i.e. hardware (raw material), design, and fabrication.
- Experts believe that the changes taken by the government in the scheme will reflect positive results. The funding received from the government should be spent on aspects like design, research and development, so that India can exploit its semiconductor sector to its full potential.

Important words and facts

- **Semiconductors:** These pure elements can be silicon or germanium or compounds of gallium, arsenide, or cadmium selenide; In which the conductivity is between the conductor and the insulators.
- **Production Link Initiative for Semiconductor:** The 'Production Linked Incentive' (PLI) scheme was also launched by the government on 1st April 2020 as a part of the National Electronics Policy. This is the amount of support given to semiconductor manufacturing companies on production.
- Currently, the semiconductor industry is valued at close to \$560 billion globally.

International

India-Japan Relations: Strong Link Between the Power Equations of Indo-Pacific

Recently Indian Prime Minister Narendra Modi visited Japan, to participate in the funeral procession of Shinzo Abe, former Prime Minister of Japan and a true supporter of India's interests. The Prime Minister's visit is the testament to the very strong ties and mutual trust between India and Japan, especially with Shinzo Abe. In fact, any level of cooperation India received from Japan in the last 10-12 years, the entity behind it was Shinzo Abe. As a strategic partner, Abe not only strengthened India's territorial security, but he planned in such a way that no authoritarian force could harm Asia-Pacific region. In order to make Asia-Pacific region poverty free, Shinzo Abe played an significant role in developing Asian Development Bank as a major source for development funding.

His strategy of countering China inspired many small island nations to maintain their ocean sovereignty. Many nations near Indo-Pacific improved their naval efficiency through naval activities of Japan.

Role of Act East Forum in strengthening the Indo-Japan relations:

Japan under the leadership of Shinzo Abe, came as the only foreign nation which decided to undertake the infrastructure development projects in the vulnerable North Eastern region of India. For this, in 2017 India and Japan jointly constituted the Act East Forum, and main objective of this forum is to promote Japanese investment in North East Indian states for infrastructure development. Japan even made financial investments to promote bamboo industry, horticulture, along with construction of roads, bridges, tunnels etc. in other north eastern states like Meghalaya, Mizoram, Manipur, Nagaland etc. India and Japan had conducted the 5th joint meeting of the India-Japan Act East Forum in New Delhi on 28 January 2021. The Act East Forum has reviewed the progress of several ongoing projects in the North East region of India in various areas like connectivity, hydropower, sustainable development, exploitation of water resources, and skill development. The two nations have ongoing discussions under India-Japan bilateral cooperation for some new projects while they have

exchanged ideas for cooperation in areas of industry, tourism and enhancing people-to-people contacts etc.

The Act East Forum provides a platform for India-Japan cooperation in the Northeast region under India's 'Act East' policy and Japan's 'free and open Indo-Pacific' approach. In their 5th meeting, the Indian Foreign Secretary and the Japanese Ambassador appreciated the important role played by the AEF on India-Japan bilateral cooperation for the development of the Northeast region since its inception in 2017.

India Japan challenging China's Belt Road Initiative through Asia Africa Growth Corridor:

In 2019, India and Japan decided to launch the Asia Africa Growth Corridor in response to China's 'String of Pearls' policy, which is an ambitious maritime connectivity initiative by India and Japan. Through the Asia Africa Growth Corridor, India is promoting regional connectivity, setting up of industries and capacity building in the African countries as per their requirements. In the year 2016, India had organized the meeting of the Board of Governors of the Africa Development Bank where India and Japan gave the idea of the Asia Africa Growth Corridor for the development of quality infrastructure in the African continent. This was seen as an effective tool of India's infrastructural diplomacy in Africa. Japan has already conducted meetings to promote Africa's development through the 'Tokyo International Conference on African Development' since 1993, the meetings takes place every five years. In October 2018, the Prime Ministers of India and Japan made it clear that the two countries share similar views on undertaking various crucial project, hence their alliance will lead to new developmental partnerships in the third country as well. The Asia or Africa Growth Corridor has four main points:

- Enhance development and collaboration projects.
- Enhance quality infrastructure and institutional connectivity.
- Strengthening abilities and skills.
- Public-to-people participation

At the Asian African Summit held in Jakarta

in April 2015, the Japanese Prime Minister said that "wherever there is talk of growth now, there is now Asia as well as Africa. Both have the fertile ground of rapid development." Asian and African countries are partners of the growth for Japan. Under this initiative, India and Japan are running various development projects, in Africa and Asia, in the areas of health and human health, agriculture and agricultural processing, disaster management and skill upgradation. Also, the emphasis has been laid on the achievement of sustainable development goals because with complete focus to trade, commerce and investment can lead to complete ignorance towards the environment, hence this initiative even emphasizes on the environmental protection. Further, the emphasis has also been laid on the integration of Asia and Africa. The Special Strategic Partnership of India and Japan in 2015 and Vision 2025 of both countries laid the foundation that the two countries would complement each other's strategic, economic interests. India and Japan in the Asia Africa Growth Corridor have clearly articulated the objectives of Vision 2025. Both initiatives state that, India and Japan are committed to work collectively to safeguard the free and open Indo-Pacific region.

Japan is eager to save India from balance of payment crisis:

India and Japan, during the time of Shinzo Abe, even signed a currency swap agreement worth \$75 billion, in the year 2019 to deal with the problem of balance of payments. India and Japan have strong economic ties. In 1990, when India faced a serious balance of payments crisis, Japan was the first country that gave financial assistance to India. In the year 2011, a Comprehensive Economic Partnership Agreement was signed between India and Japan, in which it was provided that in the next 10 years, the tariff duty on more than 94% of the goods traded between the two nations would be eliminated. The next stage of this is the free trade agreement.

Growing partnership with India-Japan's 2+2 dialogues:

The defense relationship between India and Japan was raised to new heights during the time of Shinzo Abe and in this regard, the first 2+2 dialogue between India and Japan was concluded in New Delhi on November 30, 2019. Hence, this is evident that in the matters of defense and strategic importance, both nations strive to take their mutual cooperation to new heights. The talks centered around promoting special strategic

cooperation, included Japanese Foreign Minister Toshimitsu and Defense Minister Taro Kono and India's Foreign Minister S Jaishankar and Defense Minister Rajnath Singh who made several important points and interactively communicated on matters, hence the talks are also called 2+2 dialogue.

During the conversation, discussions were made about ensuring cooperation in the maritime sector, emphasizing the need for freedom of navigation, freedom of oceans in the Indian Ocean and the Pacific Ocean as well as for other seas of the world. Both India and Japan as Asian powers seek to mitigate the activities including the dominance politics in the Pacific or Indo-Pacific region, regional disputes, unethical efforts to assert control over natural and other resources. Stability in these ocean areas and freedom of trade routes can boost economic development in these two nations. The two countries, during the dialogue, specially emphasized on the security of the Indo-Pacific region.

Logistics Exchange Agreement to consolidate the defense relationship:

It was during the tenure of Shinzo Abe that India and Japan decided to give existence to a very important military agreement on the lines of America's COMCASA Agreement, which was "Acquisition & Cross Serving Agreement (ACSA)" in 2018. This agreement is to share logistics between the countries. As both nations exercise with the US Navy in the Indian and Pacific Ocean, the decision to share military equipment with each other was quite logical. This agreement is in force since 2021 and it gave a new dimension to the strategic relationship of India and Japan in the Indian Ocean.

The question of security and stability of the Indo-Pacific region is important for India and Japan. In the year 2019 itself, India, Japan and Sri Lanka decided to open a container terminal in the Indian Ocean near the Chinese-held Hambatota port. Similarly if one talks with respect to the Pacific, China has been trying its best to capture Japan's Senkaku Island in the East China Sea, part of the Pacific Ocean, by naming it as Diaoyu or Dao Diaoyu. Hence, India and Japan have held 2+2 dialogue, with common consideration on this issue to promote Japan's independent and free Indo-Pacific version and India's Act East policy.

Importance of Japan for the success of India's Act East Policy:

During the visit of Indian Prime Minister

Narendra Modi to Japan in 2014, the two countries agreed to maintain a relationship that was centered on a "special strategic and diplomatic partnership". The Act East policy was introduced by the Indian Prime Minister in 2014 with the aim of promoting peace, stability and prosperity in the Indo-Pacific. The policy emphasized cooperation, coordination, and cooperation with other countries of the Indo-Pacific, in addition to cooperation with Southeast Asian countries. India identified Japan as an unavoidable part of this policy and hence in the year 2015 both the countries announced "Japan India Vision 2025 special Strategic and Global Partnership" whose main objective is to work for peace and prosperity in the Indo-Pacific region and the world. In 2016, the Japanese Prime Minister announced that a new era of Indo-Japanese relations had begun. There are common and personal interests of both the nations that are hidden behind these diligent efforts to strengthen mutual relations. The biggest reason in this is the need to counter China's desire for a polar economy.

The role of Shinzo Abe in India's developmental aspirations has been very crucial. Abe joined hands with the Indian government to support major initiatives such as Make in India and Skill India. Further, Japan

emerged as a major source of foreign direct investment for India. India receives the largest part of Japan's official development assistance for development assistance.

Under the leadership of Shinzo Abe, Japan's cooperation with the Indian Navy was further deepened with Japan's involvement as a regular participant in the Malabar exercise. Under his supervision, exercises between the armies also started at the ground level. Joint exercises like 'Dharm Guardian-2019' and the second 'Shinyuu Maitri-2019' were held between India Japan during his time. On the other hand, in order to strengthen the security system during the Tokyo Olympics held in 2020, the Indian Army had trained Japanese soldiers in anti-terrorist operations in the Dharma Guardian exercise. Shinzo Abe also openly praised the 'Hindi-Provincial Ocean Initiative' started by India. When in the year 2017 China declared the Doklam dispute in Bhutan, Shinzo Abe was instrumental in reviving an organization like QUAD at that time. Thus, it is clear whenever the strong foundation of India-Japan bilateral relations will be mentioned, it would be incomplete without the mention of Shinzo Abe.


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Internal Security

Will the Appointment of New CDS Lead to the Theaterisation of Armed Forces

After taking over the post of CDS on the last September 30, (retired) Lieutenant general Anil Chauhan said that, he takes pride in holding this responsibility of highest rank in the Indian armed forces. He even expressed his commitment, as the chief of Defence, to strive and meet the expectations of the three defence forces. After death of General Bipin Rawat, the country definitely needed urgently its new chief of defence staff, as this was post that formed to give new heights to Indian Army's efficiency. The post of CDS acts as a link, that guides the Indian Army, in coordinating on the matters of identifying and addressing crime, terrorism, cyber challenges and other major threats. In this regard general Bipin Rawat, as CDS, gave the idea of constituting 'theatre command' which could not be materialised due to his death. Now newly appointed CDS, (Retired) General Anil Chauhan, has made it clear that theatre command will soon be made a reality.

The new CDS directed the three armies to work on theatre command. Before this, former Defense minister Rajnath Singh in July this year, had announced to set up a joint theatre command for the three armies. All this makes it clear that defense ministry and CDS will now work actively to make theatre command a reality.

General Bipin Rawat was working under core idea of four new theatre command. In June 2021 he stated that sea borders are too vast while LAC borders are still unresolved and hence land based command was prepared. He had told that the theater command will be formed by 2022, and the focus will be on eastern and western command.

What are integrated theatre commands?

It is an organized command under which all the three forces namely, the army, the navy and the air force will work together. One unit of army, air force and navy will come under this command. Presently, there are 7 commands in army, 7 commands in air force and 3 commands in navy. As per General Bipin Rawat, all these units will be amalgamated to form four theatre commands and all these commands will report to their theatre command chief of staff. There are theatre commands in many countries presently, including the United States of America and China. As the armies will be brought under the theatre command, they will work together and the cost

of modernization of the military forces will be reduced. Also, any use of modern technology will not be limited to one army and all the military forces will be benefitted from it.

It is noteworthy, that in the theatre commands of China, Russia and America, all the three forces i.e. army, navy and air force work together and they do not have separate commands for each army. America has total 11 commands, in which 6 cover the entire world. Russia has 4 theatre commands while China has 5 theatre commands. China handles its western area through theatre command and it is through this command it monitors Indian borders.

Is it crucial to have a theatre command?

The idea of creating an integrated tri-services command is not new in India. In the past, after Kargil war, this model has been proposed at various levels. In January 2020 General Rawat was appointed chief of defence staff to progress the commands in his three years tenure and pondered over the idea to design this proposal. The officials are now considering to roll out some new commands by the end of this year. The model of four to five integrated tri-service theatre commands is being discussed upon where each command will be led by a three starred officer.

This officer will report to theatre commander, Chiefs of staff committee (COSC) and as the name suggests this committee comprises chiefs of the three services and is headed by a permanent chairman. Presently, the chiefs have all the operational control over their forces but with arrival of theatre command these operational powers will go to COSC. The Theatre command has become a need for coordination, and better use of resources. If theatre command is made it will lead better coordination and effective planning. The financial burden will reduce and resources of all three forces will be utilised in more effective way.

Doubts of air force regarding theatre command:

Several services and defence ministry sources have mentioned that, though the army and the navy support the proposal for setting up the theatre command, air force however has some apprehensions and confusion. First, it does not want its Chief to lose operational control over the air force resources. Second, it is concerned that

its resources might be distributed among these integrated theatres. A committee has been constituted comprising deputy chiefs of all three forces to address such concerns and differences and the CDS has met this committee. The air force sources said that before such significant change in the defence set up, all concerns are crucial to be cleared.

Challenges before the realization of combined theatre command:

The very first challenge for the nation regarding theatre command is that, no command is based at one place, that is, these theatre commands are situated in different regions of India. This makes it hard to establish coordination between all commands. Also, the operational areas of these commands are way far from each other. Further, there are 2 tri-service commands namely, strategic forces command (SFC) and Andaman and Nicobar Command (ANC) which are led by officials of the three services on rotational basis. This is another challenge in Theatre command.

The strategic Forces Command controls and monitors the nuclear weapons of the nation. It was created in 2003, but it has no other responsibility in other specific area. Further it is not unified theatre command but a unified functional command for nuclear weapons. Apart from this, demands have been made from the Indian government for other integrated functional command like cyber, aerospace and special operations command, though the government has not approved any so far.

It was observed during warfare that due to presence of different theatre commands, the actions of army at times were duplicated and overlapped. At the same time more resources and manpower was used. On the other hand, today the developed nations of the world use more technology. Hence, General Bipin Rawat, in his three year tenure, was entrusted with the responsibility of re-organizing the three armies and create theatre commands.

Advantages of Theatre Commands:

Experts believe that through theatre command all the three forces will have right over any special technologies or resources that theatre command will use. That is, one technology or resource could be utilised by all three armies, which will strengthen the armed force even more and any war like situations will be handled smoothly.

It is not the first time, that preparations are made

to create theatre command. Prior to this, CDS Bipin Rawat strived to constitute four theatre commands. He believed that, the right use of theatre command is made during war and any strategy made in the theatre command will aid in dealing with the enemy and war challenges.

Financial resources could be saved with the constitution of theatre commands. Further, theatre commands will enhance the coordination between the three forces. Presently, the nation has 15 lakh military personnel and if they are organised through theatre command the cost for modernisation will reduce considerably.

Lt General Anil Chauhan (Retd) is the new CDS



- Born on May 18, 1961; studied in Kolkata
- Commissioned into 11 Gorkha Rifles in 1981
- Had a career spanning nearly 40 years
- Held several command, staff and instrumental appointments
- Retired as Eastern Army Commander in May, 2021
- Served on a UN mission to Angola
- Contributed to national security, strategic matters post-retirement
- Will be India's 2nd CDS after Gen Bipin Rawat

Why the idea of theatre command was on hold for years?

The idea to create a theatre command was proposed many times in India, though in vain. The reason was differences between the three forces. The army was of the view, that the coordination should be in such a way that it can make better use of present resources. IAF has argued that, it does not have sufficient resources, and from geographical point of view, India does not require creation of theatre commands. While the navy considers the present model more better. There is another reason too. It is said that by creation of theatre command 4 star rank will reduce.

Conclusion:

Today, when instability is increasing in the world, turmoil continues in India's neighborhood, in such a situation, for the future requirement, the three armies should consider establishing theater commands in better coordination so that India's all-round security can be ensured.

6 Polity **Judicial Transparency is the Need of the Hour: Live Streaming the Proceedings of the Supreme Court**

Context:

The Supreme Court has taken a landmark decision to live-stream the proceedings of cases that are of constitutional importance. The first hearing took place on 27 September 2022.

Introduction:

- Judiciary is the most crucial organ in the three parts of the Indian polity, which keeps a constitutional watch on the functions of the legislature and the executive. The accountability of the executive and the legislature is decided directly and indirectly by the people of India, however the judiciary has kept itself independent, since the very beginning. In this context, efforts have been made on several occasions to ensure judicial accountability and transparency. Various aspects of judiciary are becoming subject of dispute, from judicial appointments to the judicial system itself. The collegium was formed after the third judge case for judicial appointments, but the working of the collegium has been quite controversial. The judiciary has been often accused of nepotism and red-tapism. In this regard, the 'National Judicial Appointment Commission' was constituted through the 99th Constitutional Amendment 2014, however in 2015, the Supreme Court declared it unconstitutional as it was not in consonance with the basic structure of the constitution. Nevertheless, then chief justice Ranjan Gogoi included the office of the Chief Justice under the Right to Information Act. Recently, live streaming of judicial proceedings has been a visionary decision to increase judicial transparency.

Constitutional Position:

- The principle of 'separation of power' has been adopted in the Indian Constitution, which means that in the Constitution, the functions of the Legislature, the Executive and the Judiciary are to be fixed separately. Article 50 of the Indian Constitution talks about the separation of the judiciary from the executive, that is, the judiciary will be free from any external interference. The Supreme Court of India is the highest court of appeal under the Constitution and has the power of judicial review. The Constitution

of India talks of a unified judicial system which also includes High Courts and Subordinate Courts. Article-124 to 147 of Part-V in the Indian Constitution deals with the Supreme Court. Under Article 124(1), it has been said that there shall be a Supreme Court in India comprising a Chief Justice and other judges. The number of other Judges shall be determined by the Parliament from time to time. At present, the total number of judges in the Supreme Court is fixed at 34 including the Chief Justice.

Supreme Court decides to live-stream the proceedings:

- It is crucial to ensure transparency and accountability in the judicial system of any democratic country. Even today, a large section of the country does not have access to the judicial system, the reason for which is the excessive expenses that a judicial process requires. In *Swapnil Tripathi v. Supreme Court of India Case*, on September 2018, the then Chief Justice Deepak Mishra held that the fundamental rights envisaged under Article 21 (private and personal liberty) includes 'the right to access to justice for all' as well. Justice Deepak Mishra, while promoting the importance of transparency, said that this openness is like 'sunlight' which is the best disinfectant i.e. increasing transparency reduces the scope for irregularity. Keeping this judgement in view, the hearing was held under the livestream in Supreme Court on 27th September, 2022 headed by the CJI U. U. Lalit. The best part was that a lot of people virtually watched the proceedings with curiosity.

Benefits of Live Streaming Proceedings:

- Since around 4.7 crore cases are pending in various courts in India, it will help in speeding up their trial and ensuring justice to all.
- The number of judges per million population in India is 21.03 whereas there has been a demand for 50 judges per million population in the various reports of the Law Commission and the Supreme Court. Court proceedings being streamed live can compensate this at big extent.
- The practice of paperless work in the courts will be

encouraged, which will save the time of Hon'ble Judges as well as the others.

- This will not only bring about a change in the entire 'justice' delivery system, it will consolidate the trust of the general public towards the Court.
- Live streaming will allow to know the level of arguments made during the proceedings, test their language style and how they obstruct the proceedings could be known, which will aid in improving the whole system

Concerns regarding Live Streaming:

- Negative public use of actions already available on YouTube and other social media. In this context, the former CJI N. V. Ramana had given the term Kangaroo Court (perpetuating unlawful court).
- Another major concern is the unauthorized use of live streaming videos, which will be difficult to regulate by the government later.
- Lack of technical infrastructure in the country. Supreme Court not having any technical platform of its own is also a matter of concern as it is likely to increase cyber crime.
- This may lead to misuse of the 'right of choice' envisaged under the Fundamental Rights

However, the Attorney General of India suggested that as a pilot project live streaming should be done only for the constitutional cases in the court of the Chief Justice of India. In addition, no sensitive cases such as that cases of sexual assault and rape, protection of the interests of adolescents or young offenders, protection of vulnerable or fearful witnesses or the cases that may affect the communal harmony, should be included in live streaming. These suggestions were accepted by the Hon'ble Supreme Court.

"Kangaroo Court" means a court which tries a person suspected of an offense or misdemeanor without any concrete evidence. Often this phrase is used against the judicial system in which the judgment against the guilty is motivated by partiality. It acts like a pseudo court in which the decision is given without any prior consideration. It was first mentioned in Australia, while its first case was recorded in America in the year 1849 AD in the Gold Rush of California. During Stalin's time in the former Soviet Union, the Kangaroo Court was used on a very wide scale, which is famous as the 'Moscow Trial'.

High Courts started Live-stream:

- The Supreme Court's decision, with regard to live streaming of the proceedings, was first implemented by the Gujarat High Court. This was followed by the Karnataka High Court, which became the second High Court to livestream the proceedings. In addition to this, High Courts of Jharkhand, Madhya Pradesh, Orissa and Patna live-stream their proceedings currently. The Allahabad High Court is considering the technical aspects related to live-streaming the proceedings as well. It is worth mentioning that live streaming will aid in manifesting the aspiration of 'e-Core Mission Mode Project' of 2005, in the courts so that, through ICT enablement, the Indian judiciary could transform itself as per the requirements of the 21st century.



Some Important Facts:

- The largest ever Bench (comprising 13 judges) in the Kesavananda Bharti case (1973) had conceptualized the basic structure of the Constitution which meant that the Parliament could not amend the basic structure of the constitution.
- In the SP Gupta case, the Justice P.N. Bhagwati had recognized the PIL.
- In the DC Wadhwa case (1986), the Supreme Court held that the misuse of the ordinance was unjustified.
- In the Indira Sawhney case (1992), the Supreme Court did a constitutional inquiry under Article 16(4), in which the discussion regarding giving 27% reservation to Other Backward Classes was done.
- In the SR Bommai case (1994), the Supreme Court had prohibited the misuse of President's rule in the states under Article 356 and directed the Council of Ministers to hold majority on the floor of the House. It is noteworthy that in 1983, the Sarkaria Commission had said that the Governor has an independent constitutional post, he is neither subordinate nor an agent to the Central Government.
- In S. P. Gupta Case, 1981, 1993, 1998, which is collectively called the Third Judges Case, the collegium system was introduced through which judges to the Supreme Court and High Courts are appointed.
- In the case of Vishakha v. Rajasthan (1997), the Supreme Court had issued guidelines in the case

of sexual harassment of women at the workplace.

- In the Shayara Bano case (2017), the Supreme Court scrapped the recognition of triple talaq at one go.

Provisions regarding live-streaming in other countries:

- Proceedings are streamed live on the Parliamentary Affairs Channel in Canada, with a detailed explanation of each case and overall court procedures.
- In South Africa, the Supreme Court since 2017 has allowed media to broadcast court proceedings in criminal cases, promoting the right to freedom of expression.
- In the United Kingdom, proceedings are being streamed live since 2005 on the court's website with few minutes delay, but the right to not broadcast in sensitive cases is still reserved.
- Audio recordings and transcriptions of oral arguments are allowed in the United States since 1955.
- Live or delayed broadcast of court proceedings is allowed in Australia, but the rules and criteria vary across the courts, while in Brazil the court

proceedings, including discussions and voting procedures conducted by judges, are allowed to be broadcasted visually and in audio since 2002.

Way Forward:

When the nation, celebrating the Azadi Ka Amrit Mahotsav has set a target of becoming a developed country by 2047 then how can the judiciary be left behind? Regarding the independence of the judiciary, Dr. Ambedkar had said that 'there cannot be a dispute in the house that the judiciary should be independent from the executive and capable in itself.' Since the judiciary is the main pillar of democracy and the last court to deliver justice to the people, the need of the hour is to enhance the trust by improving the judiciary (including the collegium system) as per the need of the present requirements. Similar far-reaching steps should be taken for more transparency in the future too. While doing this, it is necessary to maintain the constitutional boundaries, so that all the pillars of the democracy can work independently in their respective areas.



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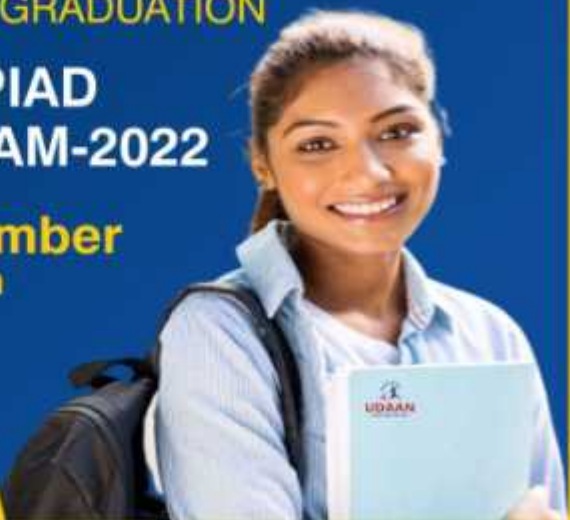
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6 Environment

Increasing Risk of Glacier Break in Himalayan Ecosystem: Challenges, Identification and Researches by Scientific Institutes

Glaciers form a major component of the Himalayan ecosystem and an important source for water supply to the Himalayan rivers. However, recently the way the Himalayan regions are witnessing the occurrence of glacier breakage and large-scale avalanches, the Himalayan ecosystem seems to be facing a major threat. No one knows when this situation will transform into a major natural disaster.

Recently, a glacier broke due to heavy snowfall in the Himalayan region, 3 km above Chorabari, a region where Mandakini river originates in Uttarakhand. Fresh ice had accumulated here which resulted in glacier break. Experts have described it as a powder glacier, although it did not cause any damage to the surrounding area, but it cannot be denied that the Kedarnath disaster of 2013 should not be repeated. Glacier experts are calling it a common occurrence in the Himalayan region. The breaking of Chorabari Glacier 5 km above Kedarnath and accumulation of immeasurable amount of water in Mandakini river was the reason for Kedarnath tragedy. The most serious thing is that in many Himalayan regions of Uttarakhand, small and big glaciers are no longer safe, many of them have developed cracks and are rather unstable.

Increase in the tendency of glaciers to change their main course:

Indian researchers studying an unknown glacier in the upper Kali Ganga valley region located in Pithoragarh district of Uttarakhand, have reported that the glacier has suddenly changed its course. This is the first time that such a path change has been reported from a Himalayan glacier, and researchers attributed this to the accumulated influence of both climate and tectonics. The unusual behaviour of this unknown glacier shows that only climate is not a restraining factor, but tectonics also play an important role in glacial catchment. The disaster at Rishiganga sometime back is a recent example that suggests that the rock on which the glacier rested gradually weakened over time (due to weathering, seepage of melted water into the joints, the mechanical disintegration of the rock by cracks, freezing and melting, snowfall and overburden, and gradually acting tectonic forces) and separated from its source. This shows that the Himalayas are an active mountain ranges and they are also extremely brittle, for which tectonics and climate play an important role.

On the other hand, a team of scientists from Wadia Institute of Himalayan Geology (WIHG) located in Dehradun, Uttarakhand, an autonomous institute under the Department of Science and Technology, Government of India, found that the path of an unknown glacier flowing north-eastwards was blocked and it was forced to grow in south east. The study, based on remote sensing and an old survey map, inferred that the glacier was affected by some active break off and climate change. The course and shape of this glacier changed due to tectonic activity and change in climatic conditions. The active fault formed a steep slope, which is about 250 meters high from the trench in the north. The length of the fault remnant is 6.2 m and is inclined from north-west to south-east. The study, based on this remarkable landform of a tectonically formed glacier, has been published in the Geoscience Journal.

The WIHG team found that the 5 km long unknown glacier, which spans about 4 sq. km region of the Kuthi Yankee Valley (a tributary of the Kali River), has suddenly changed its course. During the time between the Last Glacial Maximum (19–24 ka) and the Holocene, it changed its course due to the act of tectonic forces, and was merged into the nearby Samjurkchanki. This is a unique behaviour of the glacier and no such variation of glacier dynamics has been observed so far. The study indicates that climate is not the only factor that causes disasters in the active Himalayan mountain ranges, but tectonics plays an important role in glacier catchment too. This paves way for a new perspective in the field of glacier studies, particularly focused on the origin and change of landforms created by glacial-tectonic interactions.

Glacial melting is a natural process, and it cannot be controlled. However, melting glaciers increase the risk of glacial hazards. Various Indian institutions, organizations and universities are monitoring Himalayan glaciers using remote sensing data on a large scale to assess the disasters caused by melting glaciers. Recently, the National Disaster Management Authority (NDMA), in collaboration with the Swiss Development Corporation (SDC), has prepared guidelines, compendium, and summary for policy makers on the management of glacial lake outburst floods (GLOFs).

When glaciers melt, there is a change in glacier basin hydrology, which has a significant impact on the

water resources of Himalayan rivers. Further, it impacts the hydropower plants and downstream water budgets due to discharge differences, flash floods and depressions. Moreover, it increases the risk of glacial hazards due to the increase in the size and number of glacial lakes, the intensification of flash floods, and glacial lake outburst floods (GLOFs), impacts on agricultural operations in the higher Himalayan region, etc.

Wadia Institute of Himalayan Geology (WIHG) is monitoring some glaciers in Uttarakhand, and it was found while monitoring that the Dokariani glacier in the Bhagirathi basin has been shrinking at a rate of 15-20 meters per year since 1995, while the Chorabari glacier in the Mandakini basin is shrinking at the rate of 9-11 meters per year from 2003 to 2017. WIHG is also monitoring the Suru Basin, Durung-Drung and Pensilungpa glaciers in Ladakh, which are shrinking at the rate of ~12 m per year and ~5.6 m per year, respectively.

The NIH is conducting various studies to evaluate the ice loss due to glacial melt at catchment and basin scales across the Himalayas.

The Department of Science and Technology (DST) has supported various R&D projects for studying Himalayan glaciers under the National Mission for Sustaining Himalayan Ecosystem (NMSHE) and the National Mission on Strategic Knowledge for Climate Change (NMSKCC). Mass balance studies on some Himalayan glaciers by Kashmir University, Sikkim University, IISc and WIHG found that most Himalayan glaciers are either melting or they are shrinking at different rates.

The Ministry of Earth Sciences through its National Center for Polar and Oceanic Research (NCPOR) has been monitoring six glaciers in the Chandra Basin (2437 sq. km area) in the Western Himalayas since 2013. An ultra-modern research station named 'HIMANSH' was established in Chandra Basin to conduct field experiments and glacial missions, and it has been functioning since 2016.

Indian Institutes researching on Glaciers:

The Government of India has studied glacial melting in the Indian Himalayan region, and it keeps records of their data. Various Indian Institutes/Universities/Organizations (Geological Survey of India (GSI), Wadia Institute of Himalayan Geology (WIHG), National Center for Polar and Marine Research (NCPOR), National Institute of Hydrology (NIH), Space Applications Center (SAC), Indian Institute of Science (IISc) etc.) monitor Himalayan glaciers to track glacial

melting, along various scientific studies, and they report rapid homogeneous mass reduction in Himalayan glaciers.

The Himalayan river basin covers an area of 27.5 million square kilometres. Further, it has the largest irrigated area of 5,77,000 square kilometres, and the world's largest installed hydroelectric capacity of 26,432 MW. The melting of glaciers meets the water needs of more than a billion population of the region, which will be largely impacted by the melting of glaciers, fragments during this century and gradually essential water supplies might cut off. The total impact on water supply varies region-wise every year. The impact of climate change on glaciers is more significant for the Indus Valley than for the Ganges and Brahmaputra basins, as they are primarily fed by monsoon rains and are mainly affected due to changes in rainfall patterns.

Impact of the glacier break:

Climate change is causing rapid melting of ice and glaciers in the Himalayan ranges, changing the water supply of rivers such as the Indus, Ganga and Brahmaputra in the Himalaya-Karakoram (HK) range. The HK region of South Asia, often called the 'Water Tower of Asia or the Third Pole', is the most glaciated mountain region on Earth. Understanding the response of the HK rivers to climate change is crucial as nearly 1 billion population largely depends on these water resources. As per research named "Glacio-Hydrology of the Himalaya-Karakoram" published in the journal 'Science', the total river runoff, glacier melt and seasonal flow in these rivers are projected to increase by 2050, with few exceptions and heavy uncertainties.

The Himalayas are also called 'the Third Pole' as the area has most of the snow after the North and South Poles. The Himalayas are rich in biodiversity and more than 10 thousand plant species are found here. Climate change in this region can have far-reaching consequences. Former Vice Chancellor of Hemvati Nandan Bahuguna Garhwal University, Professor S.P. Singh says that the pollution arising from human activities in the vast plains of the Ganges is causing great harm to the Himalayan environment. He said that different regions of the Himalayas have witnessed different rates for effects of climate change. The glaciers of Western Himalayas are more impacted in comparison to the Eastern Himalayas. More than 50 glaciers of the Himalayas are shrinking and its direct effect is clearly visible on the distribution of Himalayan flora, Seasonal Biology and Taxation.



Short Issue

1 Mela Moments

Why in News:

- In order to encourage the participation of the young generation in the fairs, the Ministry of Culture has started the competition 'Mela Moments'. This competition got the backing of Prime Minister.

Mela Moments Competition:

- This competition has been started by the Ministry of Culture, Government of India under the 'Azadi Ke Amrit Mahotsav'.
- The competition was launched by the Minister of State for Culture on October 3, 2022 during the Durga Utsav organized at Greater Kailash, Delhi.
- This competition is basically divided into 4 categories, in which 3 people will be awarded in each category.
- The prize money of the competition is up to Rs.30 lakh, under which the names of the winners will be announced every month.

Objective:

- To promote people's participation in fairs, especially making the young generation more aware about their culture and traditions.
- To give a new dimension to the popularity of fairs in the country.
- In this competition, the person who sends attractive pictures of fairs will be rewarded.

Significance:

- This competition will provide an opportunity to the

countrymen to know their culture and traditions in a better way.

Organizing Fairs in India:

- India is a country full of diversity. People of many sects and cultures live here and everyone has their own language, dress and food habits, so the people here organize many types of fairs to display their diverse art, culture and tradition.

Some fairs of India:

- Kumbh Mela (Prayagraj, Ujjain, Nashik, Haridwar), Sonapur Fair, Social Festival Chhapra Fair, Margashirsha Fair, Soron Shukarkshetra Surajkund Mela, Nauchandi Fair, Ramlila, Ambuvasi Fair, Kamakhya, Chichari Fair, Goralpur, Baisali Dussehra, Bateshwar Fair, Agra, Katiki Fair, Bithur, Uttarayani Fair, Bareilly, Dadri Fair, Ballia Shaheed Fair, Bewar (Mainpuri), Ramnagar Fair, Farrulabad, Tripura Sundari Bala Fair Deoband (Saharanpur), Siddhpeth Shakambhari Devi Fair (Saharanpur)

Way Forward:

- Fairs are centers of social, cultural and economic activities. Apart from uniting the country, they play an important role in boosting the local economy as well, so the organizing of fairs in India should be encouraged more and more.

2 Swachh Survekshan Award-2022

Why in News:

- President Draupadi Murmu recently presented the award related to Swachh Survekshan 2022.
- The Swachh Survekshan 2022 Dashboard was also formally released by the President.
- The award distribution function was organized by the Ministry of Housing and Urban Affairs at Talkatora Stadium, New Delhi.
- The audio-visual song 'Garv' and documentary by the President were also released during this time.

Key Points:

- Indore, the city of lakes and palaces in the over 1 lakh population category, has been adjudged the cleanest city in India for the sixth year in a row, while the Surat has been adjudged the second cleanest city and Navi Mumbai as the third cleanest city for the second time in a row.
- In the category of population less than 1 lakh, Panchgani and Karad of Maharashtra have secured the first and third position respectively, while Patan of Chhattisgarh has secured the second position.

- In the category of more than 100 urban local bodies, Madhya Pradesh, Chhattisgarh and Maharashtra have got the cleanest state award respectively.
- The cleanest state award in the category of less than 100 urban local bodies went to Tripura, Jharkhand and Uttarakhand respectively.
- Tirupati bagged the Best City Award in the 'Safai Mitra Suraksha' category, while Shivamogga in Karnataka received the Fast Mover City award.
- Haridwar got the award for best Ganga city among cities having population of more than one lakh, while Varanasi got second and Rishikesh got third place.
- Indore got India's first 7-star garbage free city certificate, while Surat, Bhopal, Mysore, Navi Mumbai, Visakhapatnam and Tirupati received 5-star garbage free certification.
- As many as 4,355 cities participated in this year's survey, with smaller cities with less than 25,000 populations performing admirably in the survey.
- The number of star rated cities in India has gone up to 412 (11 five-star cities, 182 three-star cities and 218 one-star cities).
- The Revised Star Rating Protocol for Waste-Free Cities was launched in 2021 to conduct an overall assessment of cities on solid waste management standards.
- To make India's urban areas waste-free by 2026, the President has announced a three-week 'Waste Segregation Campaign' starting from October 2, 2022.
- Cities with a population of one lakh to 10 lakh (only 5 cities of Uttar Pradesh are included in the list of top 100 cities) Noida ranks first in the state and fifth in the country, while Aligarh is second, Mathura third, Firozabad fourth and Gonda fifth.
- First place among best Ganga cities- Bijnor (in cities with population less than one lakh) Second place among best Ganga cities- Varanasi (in cities with population more than one lakh).
- Best City for Innovation and Best Practices- Lucknow Cantonment Board.
- Uttar Pradesh has received a total of 13 awards this year.

Swachh Survekshan Awards 2022

More than 100K population

TOP 5 CITIES

RANK/ULB	SCORE
1 INDORE (MP)	7,146
2 SURAT (GUJ)	6,925
3 NAVI MUMBAI (MAHA)	6,853
4 GVMC VIZAG (AP)	6,701
5 VIJAYAWADA (AP)	6,699



Indore is India's first 7-star garbage-free city, a key objective of the second iteration of Swachh Bharat Mission.

BOTTOM 5 CITIES

RANK/ULB	SCORE
96 GORAKHPUR (UP)	4,457
97 REWA (MP)	4,451
98 DAMOH (MP)	4,451
99 VAPI (GUJ)	4,450
100 AGRA (UP)	4,447

Less than 100K population

TOP 5 CITIES

RANK/ULB	SCORE
1 PANCHGANI (MAHA)	6,396
2 PATAN (CGARH)	6,239
3 KARHAD (MAHA)	6,213
4 LONAVLA (MAHA)	5,990
5 KAJLIAT (MAHA)	5,786

BOTTOM 5 CITIES

RANK/ULB	SCORE
96 WAI (MAHA)	5,097
97 ADILHAR (CGARH)	5,093
98 SHAHDOL (MP)	5,091
99 SANAWAD (MP)	5,089
100 GADARWARA (MP)	5,065

Status of Uttar Pradesh:

- The rank of Uttar Pradesh has fallen in the overall ranking as compared to last year. In the 2021 survey, the rank of UP was sixth, while in the survey of 2022 it has come to the tenth rank.

Cities with population more than 10 lakhs:

- Ghaziabad ranks first in Uttar Pradesh and 12th in the country, whereas in the year 2021, Ghaziabad was ranked second in Uttar Pradesh and 18th in the country.
- Ghaziabad is followed by Meerut, Prayagraj, Lucknow, Varanasi, Agra and Kanpur.
- Only Ghaziabad and Meerut cities are included in the top 15 clean cities of the country in 75 districts of Uttar Pradesh. Ghaziabad is at number 12 and Meerut is at number 15.

Swachh Bharat Mission:

- Launched on 2 October 2014, the objective of this mission was to make the country 'open defecation free' by 2 October, 2019, the 150th birth anniversary of Mahatma Gandhi.

Way Forward:

- Since the year 2016, Swachh Survekshan has acted as an effective tool in changing the landscape of cities. All the countrymen should cooperate together in the making of a clean, healthy and strong India.

3 Centre extends AFSPA for 6 months

Why in News:

Recently, Central government has increased the Armed Forces Special Powers Act for another 6 months in Nagaland and Arunachal Pradesh. The act empowers the state and central government to declare any area disturbed under the AFSPA, 1958.

About AFSPA:

- The AFSPA was enacted in 1958 to deal with Naga uprising. Later it was used to counter the north east insurgency in all states.
- AFSPA gives armed forces special powers to control 'disturbed areas', which are designated by the government when it is of the opinion that region, is in such a disturbed or dangerous condition that the use of armed forces in aid of civil power is necessary.
- Under its provisions, the armed forces have been empowered to:
 1. Open fire
 2. Enter and search without warrant
 3. Legal action cannot be taken against the armed forces even in case of any wrongful action.
- Currently AFSPA is applicable in some parts of Assam, Nagaland, Manipur and Arunachal Pradesh.
- Under Section 3 of the Act, the State governments and the MHA have concurrent powers to notify areas under the AFSPA.

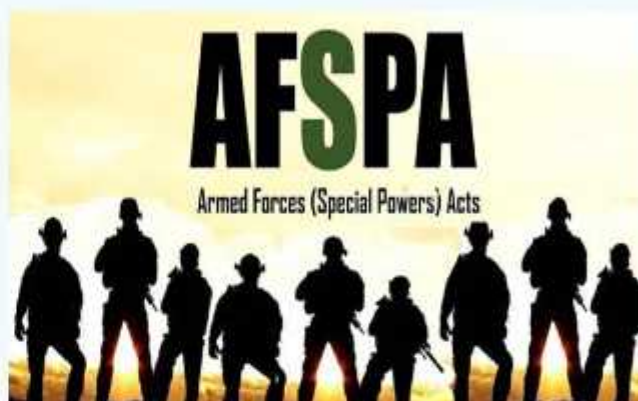
Why AFSPA Act was Retained:

- The uncertainty around the culmination of the Naga peace process is the main reason behinds retain in AFSPA in Nagaland.
- AFSPA was required in border areas of the States to curtail the movement of the underground groups.
- International border with Myanmar and Naga insurgency are the reasons for the extensions of AFSPA in Arunachal Pradesh.

About Naga Issue:

- Centre is engaged in discussions with the National Socialist Council of Nagaland (Isak-Muivah) and seven Naga National Political Groups (NNPGs) to find a solution to the Naga political issue. The Isak-Muivah faction, the key player in the Naga peace talks, has been demanding a separate constitution and a separate flag for the Nagas and the creation of

'Greater Nagaland' or Nagalim by integrating Naga-dominated areas in neighbouring Assam, Manipur, and Arunachal Pradesh to unite 1.2 million Nagas.



Issues with AFSPA:

- Misuse of safety nets by indulging in fake encounters & extrajudicial killings.
- AFSPA has been described as a harsh, oppressive, colonial and archaic law in Indian democracy.
- AFSPA can be seen as a violation of all other constitutional rights like prevention against arrest and detention, privacy etc.
- Violation of constitutional values, human rights and natural justice.
- Lack of credibility of democracy—People's disenchantment with the democratic system is exploited by separatists and sympathizers of terrorism, creating a vicious cycle of more violence and more violence.
- Critics argue that the Act has failed in its objective of restoring normalcy in disturbed areas despite being in existence for almost 60 years.

Conclusion:

All four states where AFSPA is applicable have different grounds for imposition. Thus AFSPA should be removed from the states where conditions have improved. At the same time government and the security forces should also abide by the guidelines set out by the Supreme Court, Jeevan Reddy Commission, and the National Human Rights Commission (NHRC).

4

herSTART, a platform to empower women entrepreneurs

Why in News:

President Draupadi Murmu launches 'herSTART' a start-up platform of Gujarat University for women entrepreneurs. Besides encouraging the entrepreneurial endeavours of women, the 'herStart' initiative will also link the women entrepreneurs with various private and government platforms.

Benefit of herSTART:

This platform will encourage women-led development in the Indian economy.

Platform will connect women to industry and government, thus diversifying their activity.

Platform will help women gain new knowledge.

The platform will provide various support services such as incubation, training, marketing, mentoring, etc.

Role of women in India's economy:

Women own 20.37 percent of MSMEs in India, constituting 23.3% of the labour force. According to McKinsey Global, India could potentially add US\$700 billion to global GDP by increasing the participation of women in the labour force. The percentage of women working in agricultural sectors is higher than that of men. These areas are usually credited with helping families lift themselves out of poverty and contribute to higher household incomes. According to census 2011, the literacy rate among women rose by 8.8% in the 2001-2011 decade, further highlighting the bright prospects of the country.

Government initiatives to encourage women's participation:

- **Women Entrepreneurship Forum:** It is a major platform launched by NITI Aayog to promote women entrepreneurship. The platform hosts various workshops and educational programs to motivate

women to start their own business.

- **Prime Minister's Mudra Yojana:** Even though the scheme was launched to help anyone wishing to set up a micro/small enterprise gets an institutional loan of up to Rs 10 lakh. But most of the loan avails by women.
- **Bhartiya Mahila Bank Business Loan:** This type of business loan was established in 2017 to help women to access affordable credit and dream big despite lack of resources. A collateral-free loan can also be availed for loans below Rs 1 crore.
- **Dena Shakti Yojana:** This scheme was launched for women entrepreneurs wanting to start their business in certain sectors like agriculture, retail and manufacturing. The scheme provides loans at an interest rate of 0.25% lower than the base rate. Maximum loan application is Rs. 20 lakhs.
- **Udyogini Yojana:** This scheme is for women with an annual income of Rs 1.5 lakh. It provides loans up to Rs 3 lakh for women who want to start a business but do not have the capital.

Conclusion

- There are over 15.7 million women-owned enterprises in India, with women leading the start-up ecosystem. This change clearly underlines the potential and determination of Indian women. In the coming decades, India is set to witness a major transformation, with women dominating the workforce as well as shaping and enhancing the future of the country. It is estimated that by 2030 more than 30 million women-owned businesses are expected to provide 150-170 million jobs.

5

Party Symbol dispute in Maharashtra

Why in News:

- A Constitution Bench of the Supreme Court allowed the Election Commission of India (ECI) to go ahead and decide on Maharashtra Chief Minister Eknath

Shinde's claim that his faction represents the "real" Shiv Sena party. In an interim order, the Election Commission of India (ECI) has temporarily frozen the 'bow and arrow' election symbol of the Shiv

Sena. Both parties have asked to submit alternative name and symbol before election commission of India.

The Election Symbols (Reservation and Allotment) Order, 1968:

- The Election Symbols (Reservation and Allotment) Order, 1968 empowers the Election Commission to recognize and allot election symbols to political parties. Under paragraph 15 of the order, it can decide disputes between rival groups or sections of a recognized political party to claim its name and emblem.

Legal status of Article 15:

- Under Article 15, the Election Commission is the sole authority to decide issues on dispute or merger. The Supreme Court upheld its validity in 1971 in *Sadiq Ali & Another Vs. Election Commission* case. Till date, same provision is applied for symbol dispute.

Aspects considered by EC for solving a dispute:

- The Election Commission primarily traces the support received by a claimant within a political party to its organizational wing and its legislative wing. Apart from this, the commission examines the constitution of the party and the list of office bearers presented when the party was united. It identifies the top committee(s) in the organization and finds out how office-bearers, members or representatives support rival claimants. For the legislative wing, the party counts the number of MPs and MLAs in the

rival camp. It may consider the affidavits filed by these members to ascertain where they stand.

Decisions by EC:

- The Election Commission may decide a dispute in favor of a faction provided that the faction enjoys sufficient support in its organizational and legislative wing to be entitled to the recognized party's name and emblem. It may allow another group to register itself as a separate political party. Further where the party is either vertically divided or it is not possible to say with certainty which group has the majority, the EC may freeze the party symbol and allow groups to register themselves with new names or May allow some more to be added to the existing names of the party.

Future, in the event of re-integration:

- If re-integration happens, the claimants can again approach the Election Commission and seek to be recognized as a unified party. The EC is also empowered to recognize the merger of groups into a single entity. It can restore the original party emblem and name.

Conclusion

- The commission should take consideration of all the facts and circumstances of the case in order to remain impartial and neutral. Thus, EC can give its impartial decisions.

6

Project Mausam

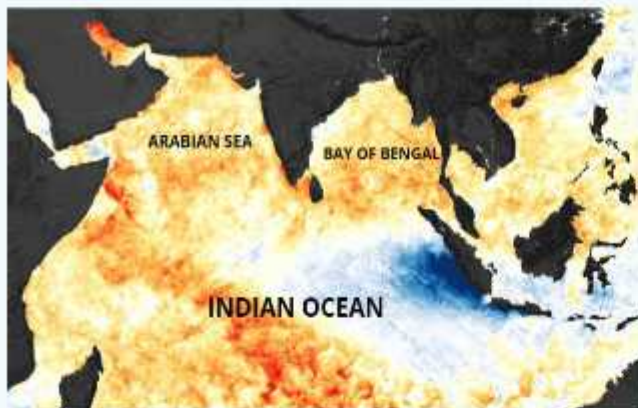
Why in News:

- Archaeological Survey of India (ASI) organised a two-day National Conference on Project Mausam–Jaladhipurayatra, with the objective of promoting further research and broadening understanding about maritime exchanges and interactions.
- The Conference consists of a Plenary Session followed by six Academic Sessions, each dealing with a particular aspect of India's maritime interactions. One session exclusively deals with issues relating to the World Heritage properties with special reference to identification of historical sites and structures

located in different countries of the Indian Ocean region and exemplifying inter-country relations, thus qualifying for trans-national nomination for UNESCO World Heritage certification.

About project Mausam:

- In an attempt to understand the Monsoon Winds and other climatic factors and the ways in which these natural elements impacted, at different periods of history, the interactions between different countries in the Indian Ocean region. 'Project Mausam' was launched by the Ministry of Culture, Government of



India at UNESCO's 38th World Heritage Committee Meeting held at Doha, Qatar, in 2014. Currently, the Project is being administered by the Archaeological Survey of India (ASI).

Indian Ocean region.

- It will improve the quantity, associations, and connections with respect to the World Heritage destinations.
- It will reclassify the social scene by identifying the gaps in World Heritage destinations and filling them through making connections.
- It will help in identifying Indian Ocean's maritime routes to achieve cross-national nomination with sustainable tourism, heritage development, research, visibility, and promotion of cultural conventions.

Way forward:

- It will help in reconnecting with the other nations in

7

YUVA 2.0

Why in News:

- The Ministry of Education, Department of Higher Education, launched YUVA 2.0 - Prime Minister's Scheme for Mentoring Young Authors, an Author Mentorship programme to train young and budding authors (below 30 years of age) in order to promote reading, writing and book culture in the country and presenting India and Indian writing at the global level. The scheme was launched on 2nd October, the birth anniversary of Mahatma Gandhi.

About the scheme:

- YUVA scheme was launched in June 2021 to promote reading writing culture.
- In view of the significant impact of the first edition of YUVA with large scale participation from young and budding authors in 22 different Indian languages and English, YUVA 2.0 is now being launched.
- YUVA 2.0, a part of the India@75 Project (Azadi Ka Amrit Mahotsav), aims to bring the vision of the younger generation of writers on the theme 'Democracy (Institutions, Events, People, Constitutional Values - Past, Present, Future)' in an innovative and creative manner. Thus, the scheme will help develop a stream of writers who can write

on various subjects to promote Indian heritage, culture and knowledge system.

- The National Book Trust, India, under the Ministry of Education as the Implementing Agency will ensure phase-wise execution of the Scheme under well-defined stages of mentorship. The books prepared under this scheme will be published by National Book Trust, India, and will also be translated into other Indian languages ensuring the exchange of culture and literature, thereby promoting 'Ek Bharat Shreshtha Bharat'. The selected young authors will interact with some of the best authors of the world, participate in literary festivals etc.

Conclusion:

- The scheme will help develop a stream of writers who can write on a spectrum of subjects to promote Indian heritage, culture and knowledge system. The scheme will also provide a window for aspiring youth to express themselves and present a comprehensive view of Indian democratic values on domestic and international platforms. Ultimately the scheme will strengthen human capital of the country.

1 Referendum in Ukraine

Context:

- Russia recently conducted a referendum in the four regions of Ukraine which was followed by annexation of regions by Russia.
- The Ukrainian President and the countries in the west have vehemently opposed the move, calling the referendum a sham and the annexation illegal.

Referendum:

- Referendum is a democratic instrument that put forth the will of the general public on a particular issue.
- It is different from voting for a representative as here the public directly decides on an issue, a proposal or a law through voting.

Russia-Ukraine war:

- Russia waged a war against Ukraine on the grounds of security and rights of ethnic Russians.
- Often claimed to be the beginning of 3rd world war, this is the largest attack after 2nd world war that a country has made on Europe.
- Russia claims that Ukraine's accession to NATO is against its security interests and territorial integrity, while accusing the west of violating the promises that were made before the disintegration of Soviet Union. While the west is of the view that Ukraine is an independent country which has the right to choose its security alliances.
- Ukraine is backed by several west nations that are aiding the country with weapons, and technology.

What is happening as of now?

- Russia recently annexed the four territorial regions of Ukraine namely, Luhansk, Donetsk, Zaporizhzhia, and Kherson after conducting a Kremlin backed referendum. The nation however, acknowledged that only 3-4% of the population residing in the areas have voted but still it proceeded to annex the territories considering the referendum legitimate.
- Russia even went further warning that if Ukraine attacks these regions it will be considered as attack against the Russia which it will retaliate through nuclear war.
- The western nations have passed a resolution, taking the matter to United Nations, condemning the illegal

annexation of the four territories and demanding Moscow to reverse its actions. Since these territories were undisputed territories of Ukraine which have been forcefully captured by Russia.

- The Russia on the other hand, claimed that the west has nothing to do with the international law or the UN charter and it is just pursuing its geopolitical objectives.



India's Stand:

- India has always advocated for resolution through peace talk and diplomacy, following the same path the country urged both the nations to look for a common platform that both nations can talk upon peacefully.
- In the meeting of United Nations Security Council, India abstained from voting on the draft resolution passed against Russia's illegal annexation. Although the nation reaffirmed its stance of peace and diplomacy, saying that it is deeply devastated from the ongoing destruction and loss of lives but the military might is not going to provide long term solutions.

Way Forward:

- Apart from the glaring loss of lives and infrastructure, the economies of both Russia and Ukraine are deeply wounded and repercussions of which is faced by the entire world. The world is faced with sharp rise in the prices of fuel, energy, metals etc., acute food shortages and a possible nuclear calamity.

2

Dams Strengthening Indo-Nepal Ties

Why in News:

The National Hydro Electric Power Corporation of India (NHPC) recently signed an MoU with Investment Board Nepal (IBN) to develop 750 MW West Seti and 450 MW Seti River (SR6) Hydroelectric Projects in western Nepal.

Background:

- The development comes after Nepal and India in early 2022 issued a Joint Vision Statement on Energy, which talks about expanding mutually beneficial bilateral cooperation in the power sector including joint development of power generation projects in Nepal.

About the MoU:

- The total cost of these projects is expected to be around \$2.4 billion. The NHPC has initiated a preliminary engagement of the site with an investment of over ₹18,000 crore and has also signed an MoU with the Power Trading Corporation Limited, India for sale of power.

Benefits for India:

Hydropower cooperation:

- The decision to involve India is a sign that Nepal is reposing its faith in India to complete the project.
- If completed, it is expected to provide India the much-needed leverage in future hydropower cooperation.
- The NHPC has initiated a preliminary engagement of the site with an investment of over ₹18,000 crores.
- It has also signed an MoU with Power Trading Corporation Limited, India for the sale of power.
- India is already involved in the Mahakali Treaty (6,480 MW), the Upper Karnali Project (900 MW), and the Arun Three projects (900 MW) in western and eastern Nepal, respectively.

Minimize Chinese influence:

- This project will also help India minimize the geopolitical influence of China and firm its presence in Nepal, considering that the West Seti Hydroelectric Project was a major Chinese venture under the Belt and Road Initiative.
- The project has the potential to enhance cross-border power exchanges between the two countries.

Nepal's hydropower potential:

- Ironically, despite its huge hydropower potential, Nepal experiences power shortages during peak times, increasing its dependence on India to bridge the shortfall.
- With an estimated potential of 83,000 MW, Nepal's electricity exports to India are expected to increase foreign exchange and address the power shortage.
- It is estimated that if the hydropower potential is fully harnessed, Nepal can generate revenue to the tune of ₹310 billion in 2030 and ₹1,069 billion per year in 2045 by exporting electricity to India.

Alternative to India's power deficit:

- Similarly, India's severe deficit in coal-based thermal power plants in recent years, which meet 70% of India's electricity demand, has compelled the Government to arrange supplies through coal imports, accelerating the search for better alternatives.
- Given the growing energy demand, the West Seti Hydroelectric Project can provide an added alternative and viable way to address power deficits.

Step that should be required for vibrant cooperation:

Conducive investment environment:

- Since investment-related constraints have delayed the project, there needs to be a careful study of investment scenarios, particularly a conducive investment environment, distribution and transmission network, and cost of resettlement and rehabilitation, at the preliminary stage.

Electricity rates:

- Nepal is concerned that the electricity rates and supply from India are inadequate to meet the rising demands.
- To address domestic demand, the MoU allows Nepal to request the NHPC to sell the power generated from the projects to the domestic market before selling whole or part to the export market.

Extension of projects to regional partners:

- The project can also be extended to other regional partners under the Bangladesh-Bhutan-India-Nepal (BBIN) framework for cross-border energy cooperation.

Conclusion:

- The success of the project is expected to restore India's image in Nepal and give it weightage in

future considerations for hydropower projects when competition is bound to be tough.

3 India hosts joint 'Anti-Terror' drill

Why in News:

- With an aim to bolster expertise and best practices among counter terrorism forces, the National Security Guard (NSG) of India is conducting a multinational joint anti-terror exercise (JATE) at its campus at Manesar, Gurugram under the Regional Anti-Terrorist Structure (RATS) of the Shanghai Cooperation Organisation (SCO) framework.

About the Exercise:

- Exercise is being conducted from October 8 to 13 at NSG Manesar Garrison, in which eight representatives from National Counter Terrorism Forces of Republic of Kazakhstan, Kyrgyz Republic, Republic of Uzbekistan, Russian Federation and NSG of Republic of India are participating.

Objective of the exercise:

- The objective of the multi-nation drill is to provide a platform to the participating member countries to enhance their operational capabilities and exchange experience in Combating Terrorism, Separatism and Extremism, which are common regional security challenges. India assumed the chairmanship of the Council of SCO RATS in October, 2021. JATE is an annual Counter Terrorist Exercise held within the framework of the SCO RATS.

About RATS:

- Regional Anti-Terrorist Structure (RATS) of the SCO

is the permanent body of the SCO based in Tashkent, the capital of Uzbekistan.

- The Regional Anti-Terrorist Structure operates in accordance with the SCO Charter, the Shanghai Convention on Combating Terrorism, Separatism and Extremism, the Agreement among the SCO member states on the Regional Anti-Terrorist Structure, as well as documents and decisions adopted in the SCO framework.

About SCO:

- The Shanghai Cooperation Organisation is a Eurasian political, economic and security organization. In terms of geographic scope and population, it is the world's largest regional organization, covering approximately 60% of the area of Eurasia, 40% of the world population and more than 30% of global GDP.
- The SCO was founded at a summit in Shanghai in 2001 by the presidents of Russia, China, the Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan.
- Over the years, it has emerged as one of the largest trans-regional international organisations. India and Pakistan became its permanent members in 2017.

Conclusion:

- In the context of rising terrorism in the region, it has become the need of the hour for the SCO countries to develop a 'cooperative and sustainable security' framework and to make the regional anti-terrorism structure more effective.

4 India Inks Defence Deal with Armenia

Why in News:

- Amidst the conflict between Armenia and Azerbaijan, India has signed a deal to export anti-tank rockets and other ammunition to Armenia worth more than Rs 2,000 crore.
- India will export indigenous Pinaka Multi-Barrel Rocket Launcher to Armenia, this will be the first

export of Pinaka Rocket Launcher from the country.

- India is striving to boost its defence exports through policy action like Make In India and other government assistance. India has already signed a \$375 million deal to export the BrahMos supersonic cruise missile to the Philippines. Defence exports have increased exponentially from the country. The

country's arms exports have seen a 6x rise since 2014, amounting to Rs. 12,815 crore during FY 2021-22. The government has set a target of defence export worth of 35000 crore to overseas market by 2025.

Pinaka multi barrel rocket launcher:

- Pinaka is a multi-barrel rocket launcher developed by Armament Research and Development Establishment (ARDE), an important arm of Defence Research and Development Organisation (DRDO). ARDE is located in Pune, Maharashtra.

Pinaka MBRL – Different Variants:

- Pinaka Mk-1, Range of 38 km
- Pinaka Mk-I Enhanced, Range of 45 km
- Pinaka Mk-II, Range of 60 km
- Pinaka Mk-III, Range of 120 km (It is still under development)

Pinaka MBRL - manufacturer:

- Ordnance Factory Board (OFB)
- Tata Power Strategic Engineering Division
- Larsen & Toubro (L&T)
- Yantra India Limited

Salient features:

- Use of state-of-the-art technologies for improved combat performance

- Cabin pressurisation for crew protection in addition to blast shields
- Microprocessor-based fully automatic positioning and fire control console
- Night vision devices for driver and crew
- Neutralisation of enemy guns/rocket locations
- Laying of anti-personnel and anti-tank mines at a short notice

Other aspect of the deal:

- While India is supplying weapons to Armenia in the ongoing conflict, Azerbaijan is supported by its traditional allies like Turkey and Israel. Armenia is generally supported by Russia but due to Russia's preoccupation in Ukraine, they are getting only limited assistance. In such a scenario, the defence deal with India can prove crucial for Armenia.
- This is not the first time that India is exporting weapons to Armenia. India secured a \$43 million contract in 2020 to export four Swathi radars to Armenia. These radars can track incoming artillery shells and locate enemy gun positions to assist in counter-attacks.

Conclusion:

- India is set to expand its firm footprint in foreign defence markets, the Brahmos and pinaka deal being an example of a successful export transaction. Many countries in Asia and Africa could emerge as the potential buyers of the Indian missile system.

5

BIMSTEC & India

Why in News:

- Recently, Bangladesh Prime Minister Sheikh Hasina visited India, where both sides underlined the need to work for stronger regional cooperation through regional organizations such as BIMSTEC and SAARC.
- At the 4th BIMSTEC Summit, the Prime Minister of India announced the opening of the Center for Bengal Studies (CBS) at Nalanda University, demonstrating India's commitment to pursue constructive work and forging deeper ties with neighboring states.

About BIMSTEC

- It is a regional multilateral organization whose members lie in the littoral and adjacent areas of the Bay of Bengal constituting a contiguous regional

unity.

- The organization was founded in 1997 through the Bangkok Declaration.
- Initially, it was formed with four member states with the acronym 'BIST-EC' (Bangladesh, India, Sri-Lanka and Thailand Economic Cooperation).
- Later Myanmar joined and in 2004 it became BIMSTEC after Bhutan and Nepal joined.

There are 7 member countries:

- Bangladesh, Bhutan, India, Nepal, Sri Lanka, Myanmar, Thailand

Objectives:

- To create an enabling environment for rapid economic development through identification and

implementation of specific cooperation projects in the sectors of trade, investment and industry, technology, human resource development, tourism, agriculture, energy, and infrastructure and transportation.

- To accelerate the economic growth and social progress in the sub-region through joint endeavours in a spirit of equality and partnership.
- To promote active collaboration and mutual assistance on matters of common interest in the economic, social, technical and scientific fields.
- To provide assistance to each other in the form of training and research facilities in the educational, professional and technical spheres.
- To cooperate more effectively in joint efforts that are supportive of and complementary to national development plans of Member States which result in tangible benefits to the people in raising their living standards, including generating employment and improving transportation and communication infrastructure.
- To maintain close and beneficial cooperation with existing international and regional organizations with similar aims and purposes.
- To cooperate in projects that can be dealt with most productively on a sub-regional basis and make best use of available synergies among BIMSTEC member countries.

Centre for Bay of Bengal Studies (CBS): Rethinking the Bay

- The CBS will offer collaborations in areas such as
- Geo-economics and geopolitics
- Trade and connectivity
- Ecology and maritime security

- Foster maritime laws and cultural heritage.

Significance of BIMSTEC for India:

- BIMSTEC connects India's Northeast with BIMSTEC countries and serves as a platform for realizing India's Neighborhood First Policy and Act East Policy.
- India promotes education cooperation by providing scholarships to BIMSTEC member countries and enhances people-to-people ties through heritage and culture.
- The India-Myanmar-Thailand Trilateral Highway, the Kaladan Multi-Modal Transit Transport Corridor and the Bangladesh Bhutan India Nepal (BBIN) initiative are the focus areas of BIMSTEC.
- BIMSTEC is the only platform through which India can pursue its interests in South Asia without any hindrance from Pakistan, while also enabling India to counter Chinese influence in its neighbourhood.
- BIMSTEC has become a platform for strong collective action among member states and helps member countries to efficiently distribute COVID-19 vaccines.

Conclusion:

- Although BIMSTEC partnerships are found in areas related to health, knowledge and education, there is a possibility that the organization may reconsider cooperation in all areas. There should be more focus on those sectors which are directly involved in the economy and enable BIMSTEC countries to revive their economy.

6

UN World Geospatial International Conference copy

Context:

- The Second United Nations World Conference was organised in Hyderabad, from October 11-14, 2022.

About:

- The Conference was convened by United Nations Committee of experts on global geospatial information management (UN-GGIM)
- It was organised by department of economic and social affairs of United Nations and hosted by India through Ministry of Science and technology.

- Theme: 'Geo-Enabling the Global Village: No one should be left behind.'
- The congress reflected the importance of integrated geospatial information and address its integrated development and management.

The sessions were dedicated on importance of geospatial information for:

1. Supporting sustainable development and well being of society
2. Environmental and climate change

3. Embracing technological development and Digital transformation.
 - The UNWGIC is conducted every 4 years, and was first organised by China in October 2018

What is geospatial data?

- Geospatial data is the data about objects, events or phenomenon that have location on the surface of the earth.
- There are various technologies that contribute in analysing and mapping the data of earth and human societies.
- These technologies can range from prehistoric maps to the latest technologies of remote sensing, navigation satellite systems.
- It is of general interest to wide range of users, like information regarding roads, localities public enmities is crucial for array of purposes.
- Further, geographical information regarding biodiversity, forests aid in their effective management and conservation
- Geospatial data has array of other crucial aspects like, defence and national security, effective intracultural development etc.

Technologies involved:

- The Second World War (1939–1945) expedited the science and art of photographic interpretation and map-making.
- The Cold War (1945–1989) gave it new dimensions with the development of satellites and computers.
- Since then several technologies have been developed that integrates the geo-spatial information and aid the dissemination of the same around the globe. These technologies include technologies like:
 1. Remote sensing

2. Geographical Information system (GIS) that gives information regarding position of earth's surface
3. Global Navigation Satellite System, a constellation of satellites that positioning, navigation etc. information

Geospatial technologies in India:

- The Indian Prime Minister during his inaugural speech pointed out that technology and talent are two pillars that are key to India's development journey.
- The Union Minister for Science and Technology further added that geospatial economy is expected to cross Rs 63,000 crore by 2025 at growth rate of 12.8%.
- Further, the ministry unveiled A geospatial incubator that would boost current boom of technology led startups.
- SVAMITVA Scheme that envisages to empower rural population by giving the rural landowners a digital certificate of landholding.
- The survey of India developed a geographic information system named Sarthi and its online maps portal has around 4000 maps especially developed for end users.
- Bhuvan, a geo portal developed and hosted by ISRO has data, services and tools that can be used for analysis.

Way Forward:

By using contemporary geospatial technologies, the Indian geospatial ecosystem will become more democratic, fostering domestic innovation and enabling Indian businesses to compete in the global mapping ecosystem, fully realising the goal of "Atmanirbhar Bharat" or "Self-sufficient India."

7

India's claim in UNSC

- Recently released World Population Prospects 2022 reported that India is projected to surpass China as the world's most populous country in 2023. This further strengthens India's claim for permanent membership in the UN Security Council (UNSC).
- About UNSC
 - UNSC is one of the six principal organs of the United Nations which was
 - established by the UN Charter in 1945.
- Headquarter of UNSC is in New York and its primary responsibility is to
 - maintain international peace and security. Its membership consists of
 - 15 out of which 5 are permanent members (P5) viz. Russian Federation, United States, China, France and United Kingdom and 10 non-permanent members elected by General Assembly for a term of two-years. Each member of UNSC has one vote and

the permanent members have veto power over the decisions of the UNSC.

India's claim for permanent membership in UNSC

1. Historic ties with UN:

- India is UN's original member.
- It has taken active role in several UN's activities such as Millennium Development Goals (MDGs), SDGs, Climate Change summits etc.
- India is the largest contributor of peace keeping force of UN around world.

2. India's leadership role in developing world:

- India highlights the interest of the countries which are not represented in UNSC.
- It also represents the Third world countries as was seen in Non-Aligned Movement.

3. India- a strong contender for permanent seat in UNSC:

- India has shown strong adherence to the rule of law and global goods such as Panchsheel and strong steps taken to limit climate change.
- Also, India is the fifth largest economy and third largest in terms of Purchasing Power Parity (PPP).
- India's population represents almost one-sixth of the global population.
- India is the largest democracy and the epitome of diversity with harmony in terms of factions, views and ideology.

India's Strategy at UN:

- To put its claim, India has become a member of G4 grouping which aspire to become permanent members of UNSC.

About G4

- G4 was formed in 2004 and its members include India, Brazil, Germany and Japan. G4 countries meet annually on the sidelines of the UNGA sessions. They support each other's bid for permanent membership in UNSC. G4 campaigns for UNSC reforms both at permanent and non-permanent aspects.
- Coffee Club or Uniting for Consensus Movement was formed to oppose the G4 bids. It is a group of 12 led by Italy, including countries such as Pakistan.

Potential Benefits for India

- India's seat at UNSC would ensure its national

interests are not compromised at the altar of great power politics. This would help in balancing China by stalling any potential intervention of China at the behest of its ally Pakistan.

- A permanent seat at UNSC would facilitate India to expand its geo-political and geo-economic clout globally.
- It will transform India's status from a being a rule follower to rule maker.
- It would further strengthen India's status of an emerging leader in Asia.

Major Roadblock in India's way:

- China has been a hurdle in India's permanent membership by means of its veto power.
- The Socio-economic indicators of India such as low Human Development Index (HDI) score questions its position of permanent members in UNSC.
- India's firmness on several issues such as Non Proliferation Treaty (NPT), Comprehensive Nuclear-Test Ban Treaty (CNTBT) proves to be a major hurdle to India's claim.
- Being a major military power of the world, India is heavily dependent on imports for its weapon. Also, the military capacity is limited to Indian Ocean region only.

Six Principal organs of UNSC

1. General Assembly (UNGA)
2. Security Council (UNSC)
3. Trusteeship Council
4. Economic and Social Council
5. International Court of Justice
6. Secretariat

Conclusion:

- India, being one of the fastest emerging economies of the world needs to balance its interests to align with the multilateral forums like UN. India's claim to UNSC is legitimate in order to acknowledge the changing order of global governance

1 UP Announces Its 4th Tiger Reserve

Context:

- Recently, Uttar Pradesh cabinet approved the proposal of setting up its fourth tiger reserve at Ranipur wildlife sanctuary in Chitrakoot district, Bundelkhand.
- Covering the area of almost 530 sq. km, this tiger reserve will be a first for the city Bundelkhand, forth in the state and 54th tiger reserve of India.

About Ranipur Wildlife Sanctuary:

- Ranipur wildlife sanctuary was established in 1977, and it is one of the major attraction for tourists in Chitrakoot district. However, due to its difficult terrains it is not much accessible.
- It comprises various kind of flora and fauna. Some of the major wildlife that inhabits here include tigers, leopards, sambars, blackbucks, peafowl, jungle fowl, painted partridges, and chinkaras.
- Although, sanctuary has no tiger of its own, the tigers from Panna Tiger Reserve are sighted here and often their pugmarks are observed.
- It serves as a major corridor for tiger movement, as per reports of National Tiger Conservation Authority (NTCA).

The Ranipur Tiger Reserve:

- The Uttar Pradesh Cabinet approved this tiger reserve under section 38(v) of wildlife (protection) act, 1972. This section empowers the state government with a power to notify any area as a tiger reserve.
- It will span the area of around 530 sq. km, where 230 sq. km is the core area of Ranipur wildlife sanctuary, while extra 300 sq. km is added as a buffer zone.
- It will be fourth tiger reserve of Uttar Pradesh after Dudhwa National Park, Pilibhit and Amangarh Tiger Reserve.
- It is estimated that as consequence of Ken-Betwa Project the tigers of Panna Tiger Reserve Madhya Pradesh will migrate to this tiger reserve and hence the government decided to notify this area as tiger reserve.
- The Ranipur Tiger Conservation Foundation will be set for conserving and protecting the tigers.

The Project Tiger:

- The need to conserve emerged when the number of

tigers drastically dropped from 40000 in 1900 to only 1800 in 1972.

- The Project tiger was launched in 1973 with 9 tiger reserves. Once Ranipur tiger reserve is notified it will become of project tiger taking the number of total tiger reserves in India to 54.
- It is a centrally sponsored ongoing scheme under Environment ministry that assists the tiger states in tiger conservation. National tiger conservation authority is the statutory body of this ministry for supervisory/coordination roles and performing functions provided in wildlife protection act, 1972.



- The tiger reserves are established on the basis of core/buffer strategy, where the reserve is divided into two categories namely core area and buffer area. The core area is given a legal status of national park or a sanctuary, while the buffer areas are peripheral to core area. Buffer land is mix of forest and non-forest land and is used for multiple purposes.

Tigers in India:

- Belonging to genus panthera, this is largest cat breed in world.
- There are eight recognised species of tigers, out of which three are extinct.
- There are around 3726 to 5578 tigers in the world, out of which 70% reside in India.

Protection status:

1. Wildlife protection Act, 1972: Schedule 1
2. IUCN red list: endangered
3. CITES: Appendix 1

2 Global Alliance on Green Economy launched

Why in News:

The "Global Alliance on Green Economy" has been launched during the World Green Economy Summit, Dubai. It is a big step towards sustainable development. This new Global Alliance has been launched under the leadership of Prime Minister and Vice President of UAE.

Objectives of alliance:

The main objective of this alliance is to create a coalition of such countries that can prioritize the development of green economies, who can take climate action with full commitment and who do not compromise on sustainable development. Through this alliance, cooperation and support will be provided to increase the capacity of developing countries so that these countries can work on green economy projects and share their experiences.

About World Green Economy Summit:

- 8th World Green Economy Summit was held on 28 September at the World Trade Centre in Dubai. The summit was organized by the Dubai Electricity and Water Authority and the World Green Economy Organization, as well as the Dubai Supreme Council of Energy. The summit was held under the theme "Climate action leadership through collaboration: The roadmap to net-zero."
- The summit talked about accelerating the adoption of agro-technologies to transform food systems. The summit reviewed emerging technologies that have the potential to rapidly advance innovation in climate-smart agriculture and food systems. It also discussed a blueprint for blue carbon. The strategy to decarbonize our energy sector was also discussed prominently here. The issues of sustainable energy supply in the Middle East and North Africa region also known as MENA region were discussed sensitively.
- The World Green Economy Summit (WGES) is one of the leading global forums on the green economy. It brings together world-class experts in critical sectors from around the world to directly focus on advancing the global green economy and sustainability agenda, achieving the UN Sustainable Development Goals.

India stand at summit:

- On behalf of India, the Minister of Environment, Forest and Climate Change attended this summit. India's emphasis was on the issue that moving towards low carbon emissions in various economic sectors is the need of the hour.
- On Climate Finance, the Environment Minister said that the Glasgow Financial Alliance for Net Zero estimated that by 2050, \$100 trillion funding would be required for the global net zero. But, developed countries have also failed to raise \$100 billion per year by 2020. At the same time, India's NDC (Nationally Determined Contribution) has been largely financed from domestic investment.



Conclusion:

To tackle climate change, the world has to move towards a green economy. For this, countries need a platform with a common objective. The UAE Global Alliance on Green Economy seeks to provide a platform where several countries will collaborate with each other for a common purpose.

3 Green Steel

Why in News:

Eastern India is an important region for environmental protection and green steel production.

In order to provide gas to all steel plants to grow in the field of 'Green Steel', the Ministry of Petroleum and Natural Gas had started 'Pradhan Mantri Urja Ganga Project' in Eastern India in the year 2019.

Green Steel:

- Green steel refers to steel that is manufactured without the use of fossil fuels.
- In the manufacturing of green steel, low carbon energy sources such as hydrogen, coal gasification or electricity are used in place of coal.
- The use of low-carbon energy sources reduces greenhouse gas emissions, thereby reducing costs and improving the quality of steel.
- The use of low-carbon energy sources also reduces the carbon footprint of the steel industry.
- The National Hydrogen Energy Mission was announced in February 2021 for a clean alternative fuel option.

National Hydrogen Energy Mission:

- The National Hydrogen Energy Mission lays emphasis on hydrogen production from green energy resources. 1500 crore has been allocated to meet India's ambitious target of 175GW by the year 2022. This will help India achieve the Paris climate change goals, as well as reduce India's dependence on fossil fuel imports.

Importance:

- The steel industry is the largest industrial sector in terms of energy and resource use. It is one of the largest emitters of carbon dioxide.
- As per the commitments made at the United Nations Climate Change Conference (COP-26), the Indian steel industry has to substantially reduce its carbon emissions by 2030 and achieve the target of net-zero carbon emissions by 2070.

Types of Hydrogen:

- Green hydrogen is produced by electrolysis of water using renewable energy (such as solar energy and

wind power) which has a low carbon footprint.

- Brown hydrogen is produced using coal where the emissions are expelled into the atmosphere.
- Gray hydrogen is produced from natural gas where the associated emissions are expelled into the atmosphere.
- Blue hydrogen is produced from natural gas, where emissions are captured using carbon capture and storage.



Steel Production in India:

- At present, India ranks second in the world in the production of crude steel. India produced 120 million tonnes of crude steel during the last financial year.
- More than 80 percent of the steel reserves in the country are present in the states of Odisha, Jharkhand, West Bengal, Chhattisgarh and Andhra Pradesh.
- Bhilai (Chhattisgarh), Durgapur and Burnpur (West Bengal), Jamshedpur (Jharkhand), Rourkela (Odisha), Bokaro (Jharkhand) etc. are important steel producing centers in the country.
- In the year 2021, according to the World Steel Association, India was the second largest consumer of steel after China.

Way Forward:

- Low carbon energy sources and cost effective technologies should be adopted to make the steel sector carbon free. Old and polluting plants should be removed.
- The government and the public sector should lay emphasis on procurement of environmentally sustainable and green steel.

4 Insects Damaging Plants More Despite Dwindling Numbers

About the Research:

- According to a study published in the journal, 'Proceedings of the National Academy of Sciences', the difference in total damage frequency in modern plants is more than double of the fossil record, which was more likely caused by all groups of herbivorous insects and not just one group.
- The research was conducted by comparing insect damage on modern plants (post 1995) with fossilised leaves from Late Cretaceous period (nearly 67 million years ago) through the Pleistocene (2.06 million years ago).

Insect-Driven damage:

- The leaf damage patterns vary as different insect groups have specific mouthparts. For example, an insect with a powerful mandible or jaw, like a grasshopper, can eat leaf tissue and veins.
- An Aphid, the soft bodied, small sap-sucking insect makes a tiny hole with its needle-like mouth, which ultimately weaken the plants, harming the overall growth. The patterns vary in shape and are preserved on fossils and modern leaf tissues.

Responsive factors for increase in damage frequency:

- Based on data, the research speculates that humans have influenced the insects' ability to cause damage within modern forests, particularly after the Industrial Revolution. Climate change is closely linked to this as the insect damage was 23% more on the plant samples from early 2000s as compared to early 1900s. Other decisive factors are urbanization and the introduction of invasive species.

Plummeting insect numbers with increasing insect-driven plant damage:

- The Planet is at the start of 6th mass extinction. According to a 2019 analysis, 40% of insect species faced extinction threats possibly due to habitat loss, pesticides, agrochemical pollutants, climate change and invasive species.
- The study revealed that the warming climate and increasing carbon dioxide levels have reduced the levels of essential nutrient- Nitrogen. To get the same amount of nitrogen, the insects need to eat more leaf material. Alternatively, the climate change has created conditions favourable for specific group of insects to thrive.



Impact on Agriculture:

- Many insects are voracious feeders with the ability to withstand unrelenting environmental conditions, causing harm to crops. They feed on plants inflicting irreversible damage to crop yields and farm animals. The herbivores are believed to be responsible for destroying one-fifth of the world's total crop annually. With increasing damage frequency, agriculture damage is more noticeable.
- The research suggests that the strength of human influence on plant-insect interactions is not controlled by climate change alone but, rather, the way in which humans interact with the terrestrial landscape.

5 Lakes Turning Green-Brown

Why in News:

- Researchers analysed satellite photos of more than 85,000 lakes from across the world and revealed the disturbing trend. The research states that warmer temperatures are expected to change the color of many lakes currently from blue to green or brown

because the warm water promotes algae blooms.

Findings of the research:

- While substances such as algae and sediments can affect the color of lakes, the new study finds that air temperature, precipitation, lake depth and elevation

also play important roles in determining a lake's water color.

- Blue lakes, which account for less than one-third of the world's lakes, tend to be deeper and are found in cool, high-latitude regions with high precipitation and winter ice cover. Green-brown lakes, which are 69% of all lakes, are more widespread, and are found in drier regions, continental interiors, and along coastlines, the study finds.
- The study found that climate change could reduce the percentage of blue lakes, many of which are found in the Rocky Mountains, northeastern Canada, northern Europe and New Zealand.
- Warmer water, which produces more algae blooms, will turn lakes green. Algal blooms have increased in the North American Great Lakes and among the most rapidly warming lakes. Research has also shown that remote arctic regions have increasing numbers of green lakes.
- In places such as Sweden and Finland where lakes are culturally prevalent, changes in water color can have recreational and cultural implications. As warming continues, northern Europe's lakes will likely lose their winter ice cover, which could affect winter and cultural activities.

What is Lake:

- A lake is a body of water that is surrounded by land. Lake water can be fresh or more rarely salty or saline.

Importance of lake

- There many activities that connected with lake –

- **Irrigation-** Many lakes in the world are used for irrigation purpose.
- **Drinking Water-** lakes are serves as a source of drinking water of many people in the world.
- **Navigation-** Many European lakes are used for navigation purpose.
- **Livelihood-** serves as best source of livelihood of many people by fisheries, cultural activity, games, and tourism hub.

Important facts about lakes in India:

- Wular Lake is one of the biggest freshwater lakes in Asia and it was formed as a result of tectonic activity.
- Chilika Lake in Odisha is the largest saline water lake in India.
- Vembanad Lake in Kerala is the longest lake in India.
- Cholamu Lake in Sikkim is the highest lake in India.
- Lonar Lake is a notified National Geo-heritage Monument, saline soda lake and is located at Lonar in Buldhana district, Maharashtra.

Conclusion:

- There are some instances in India too where lakes are turning green due to two reasons- pollution and use of fertilizers. These factors increase the eutrophication of the lake, thus increasing the activity of the algal boom and eventually turning the lake green. To solve these problems, we have to reduce our ecological footprint and reduce the use of agricultural fertilizers.

6 Rise in Sea Level

Why in News:

- According to UN climate experts, sea levels have already risen 15 to 25 cm (six to 10 inches) since 1900, and the pace of rise is accelerating, especially in some tropical areas. If warming trends continue, the oceans could rise by nearly one additional meter (39 inches) around the Pacific and Indian Ocean islands by the end of the century. According to a study cited by the UN's Intergovernmental Panel on Climate Change, five nations (the Maldives, Tuvalu, the Marshall Islands, Nauru and Kiribati) may become uninhabitable by 2100, creating 600,000 stateless climate refugees.

Causes for rising sea level:

- Scientists agree that the changes in climate evident today are largely caused by human activity, and it's climate change that drives sea level rise.
- Sea level started rising in the late 1800s, soon after starting of burning coal, gas and other fossil fuels for energy. When burned, these high-energy fuel sources send carbon dioxide up into the atmosphere. Carbon dioxide absorbs heat from the sun and traps it, warming the atmosphere and the planet.
- As the planet gets warmer, sea level rises for two reasons:
 1. First, warmer temperatures cause ice on land (

glaciers and ice sheets) to melt, and the meltwater flows into the ocean to increase sea level.

2. Second, warm water expands and takes up more space than colder water, increasing the volume of water in the sea.



Vulnerability to Island Nations:

- The IPCC report pointed that the global mean sea level in the Indian Ocean is rising at 3.7 meters annually, adding that extreme sea level events that previously occurred once every 100 years, will now be seen nearly every year, contributing to more frequent and severe coastal flooding in low-lying areas and coastal erosion.
- This seriously comes up as a major threat to the low-lying island nations of the Indian Ocean like the Maldives etc.
- Sea level rise already makes storms more dangerous, causing more flooding and damage in areas crowded

with people. And it will affect different parts of the world differently, with some parts of the planet being particularly hard hit.

Various steps taken to tackle sea level rise:

- **Relocation:** Many coastal cities have planned to adopt relocation as a mitigation strategy. For example, Kiribati Island has planned to buy land from Fiji, while the Capital of Indonesia is being relocated from Jakarta to Borneo.
- **Building Sea Wall:** Indonesia's government launched a coastal development project called a Giant Sea Wall or "Giant Garuda" in 2014 meant to protect the city from floods.

Creating Natural Infrastructure:

- Coastal communities can restore natural infrastructure, which can act as a buffer against storms and coastal flooding.
- Natural structures such as barrier islands, oyster and coral reefs, mangroves, seagrass, and salt marshes can work alone or in unison with built infrastructure, like seawalls, to absorb storm surges.

Conclusion:

- Across the globe, we can see innovative and resourceful solutions from communities that are coming together to combat sea level rise. Such solutions can become the guiding path for other cities to follow.

7 Electric Planes are coming soon for Regional Flights

Context:

- Two-seater Velis Electros (electric aircraft) are already quietly buzzing around Europe, electric sea planes are being tested in British Columbia, and larger planes are coming soon.
- Air Canada announced on September 15 announced that it would purchase 30 electric-hybrid regional aircraft from Sweden's Hart Aerospace, which hopes to have its 30-seat aircraft in service by 2028.
- About 3% of global emissions today come from

aviation, and with more passengers and flights expected to expand the population, aviation could produce three to five times more carbon dioxide emissions by 2050 than before the COVID-19 pandemic.

Difficulty in electrification of aviation sector:

- Aircraft are some of the most complex machines in use, but the biggest problem for electrifying them is the battery weight.
- Jet fuel can hold about 50 times more energy

compared to batteries per unit mass. So, the plane can have 1 pound of jet fuel or 50 pounds of batteries.

- To close that gap, we need to either make lithium-ion batteries lighter or develop new batteries that hold more energy. New batteries are being developed, but they aren't yet ready for aircraft.

An electric alternative is hybrids:

- Even though it might not be possible to fully electrify a 737, but some fuel burn benefits from batteries in the larger jets by using hybrid propulsion systems can be achieved.
- Engineers are trying to make that happen in the short term, with a 2030-2035 target for smaller regional planes. The less fuel burned during flight, the fewer greenhouse gas emissions.



Hybrid aviation reducing emissions:

- Hybrid electric aircraft are similar to hybrid electric cars in that they use a combination of batteries and aviation fuels.
- Using batteries as a power assist during takeoff and climb are very promising options. Taxiing to the runway using just electric power could also save a significant amount of fuel and reduce the local emissions at airports.
- Hybridisation is a mid-term option for larger jets, but a near-term solution for regional aircraft.
- With electric hybrids, airlines could also make more use of regional airports, reducing congestion and time larger planes spend idling on the runway.

Is hydrogen an option for aviation?

- Hydrogen fuel is present for a very long time, and when it's green hydrogen – produced with water and electrolysis powered by renewable energy – it doesn't produce carbon dioxide. It can also hold more energy per unit of mass than batteries.
- There are two ways to use hydrogen in an airplane: either in place of regular jet fuel in an engine, or combined with oxygen to power hydrogen fuel cells, which then generate electricity to power the aircraft.
- The problem is volume – hydrogen gas takes up a lot of space. That's why engineers are looking at methods like keeping it very cool so it can be stored as liquid until it's burned as a gas.
- It still takes up more space than jet fuel, and the storage tanks are heavy, so how to store, handle or distribute it on aircraft is still being worked out.
- Due to the variety of options, I see hydrogen as one of the key technologies for sustainable aviation.

Conclusion:

- By 2050, we could see three to five times more carbon dioxide emissions from aviation than before the pandemic.
- The International Civil Aviation Organisation, a United Nations agency, generally defines the industry's goals, looking at what's feasible and how aviation can push the boundaries.
- Its long-term goal is to cut net carbon dioxide emissions 50 per cent by 2050 compared with 2005 levels. Getting there will require a mix of different technologies and optimisation.

1 Prachanda light combat helicopter

Context:

Indian army formally inducted the indigenously built light combat helicopter, Prachand, into its Jodhpur base on 29th September 2022. The name Prachand denotes fierceness.

About the Light combat helicopter:

- Weighing almost 5800 kg, this combat helicopter is equipped with twin Shakti engines possessing air combat capability and potent ground attack.
- It has combat radius of 500 km, maximum speed of 288 km/h and it can go up to height of 21000 feet, making it ideal for high altitude areas like Siachen etc.
- It is adorned with various stealth features like, crashworthy land gear for better survivability, reduced radar and infra-red signatures, armoured protection systems and night attack capability.
- Further, it has a 20 mm nose gun planted in the front with firing capability of 800 rpm and firing range up to 2 km, a 70 mm rocket pod planted at stub wing, an anti tank guided missile 'Dhruvastra' and a air to air missile 'Mistral-2'

About the LCH programme:

- The need for dedicated platform, that can operate at high altitudes and strike precisely, was felt during Kargil war 1999. Since the existing choppers were limited in capability, the foundation for India-made light combat helicopters was laid.
- The Indian government sanctioned the design and development of LCH in October 2006 and later in 2013, the Indian Army joined the programme.
- After being flight tested rigorously in various terrains and diverse weather conditions these helicopters received their initial clearance in August 2017 and were declared ready for production in 2020.
- The cabinet committee headed by Prime Minister approved the procurement of 15 LSP (limited series production) variant for Indian army and Indian Air Force.
- The Limited Series Production LCH are made out of 45% indigenous content envisaging to reach more than 55% eventually.

- If India seeks to consolidate its position as a super power, it needs to develop technology that is indigenously built benefitting not only its citizens but the entire globe. Several initiatives have been taken in this regard.
- The budget 2022-23 earmarked 68% of the capital procurement budget for the domestic industry which is higher than the 58% of allocation in the year 2021-22.
- As per SIPRI reports, India was among the top 5 spenders of 2021 and its military spending was 76.6 billion USD which is third largest around the world. As per report, India prioritised modernising its armed forces and increasing self reliance in arms production amid its ongoing dispute with China and Pakistan.
- India further envisaged for Atmanirbharta (self reliance) in the defence sector by introducing positive indigenisation list, which was earlier called negative import list, to progressively ban the import of Military hardware.
- An array of weapon systems like, beyond visual range (BVR) missiles, Quick response surface-to-air missile (QRSAM), anti tank missiles like Helina and Nag, India's first anti-radiation missile Rudram, Smart Anti-airfield Weapon (SAAW) etc. will be delivered to Indian army between 2021-2023.



Way forward:

Despite India striving to achieve and stride towards self-reliance, the increase threats from Pakistan and its organised terrorist activities, the expansionist tendency of China and its border disputes etc., might hinder the path. Thus, India needs to strategically address its neighbours while simultaneously working towards Atmanirbharta.

Indian Indigenous technology for defence:

2 Virtual Autopsy

Context:

- Late comedian Raju Srivastava post-mortem was performed through Virtual Autopsy. This was done to scrutinise into the factors that might have led to his death.
- Raju Srivastava was an Indian comedian, actor and politician from Uttar Pradesh, who recently died on September 21st, 2022. He suffered a cardiac arrest while working out and was fighting for days with the complications arising out of cardiac arrest.

What is virtual autopsy?

- It is a non-intrusive and highly specialised surgical procedure that thoroughly examines the corpse, evaluating the injuries, diseases, causes and the manner of death.
- It combines the methods of forensic science and radiology, using imaging methods like, high-tech digital X-Rays, Computed tomography (CT) Scan and Magnetic resonance imaging (MRI) etc. for detailed and systematic examination of the body.
- It can be substituted, in most of the circumstances, with the standard autopsies which usually require thorough examination of the dead body through dissection.

The Need for virtual Autopsy:

- People's sentiments are usually triggered when the dead body of their loved ones is not handled in a dignified way, and is mutilated. Thus, the government and AIIMs have taken up this project for 'dignified management of the dead body.'
- The longstanding demand for minimal intrusive autopsy re-emerged in UK after organ retention scandals in late 1990s. Many religious communities like Jews and Muslims, having religious objection to standard autopsy demanded minimal invasive methods.

- The dead bodies that are difficult to examine, this method paves way for their easy examination.

Advantages of Virtual Autopsy:

- Virtual Autopsy eliminates the need of dissecting the body, often imparting better results and observations than the standard post-mortem autopsies.
- Apart from being almost non-invasive, this method is quick and faster than the traditional autopsy and takes less than 30 minutes.
- The data from the procedure can be easily retrieved for the medico legal purposes.
- Any toxic body can be easily examined without the risk of contamination. It becomes a quick way to examine the body that are charred or mutilated in any way, as the visual examination of these bodies is difficult.

Disadvantages:

- Since there is no direct contact with the dead body, the physiological senses like smell, texture and colour, of anatomical pathologist is restricted.
- The procedure requires use of high technology imaging devices which is costly, and least developed countries and states may not be able to afford it. Thus, it is not feasible for everyone.

Virtual Autopsy around the globe:

- Virtual Autopsy mark its advent from Sweden, and now it is a common practice in the countries like, Japan, The United States, Australia and several European Nations.
- In 1990s, Manchester (UK) introduced post-mortem MRI services for 'selected non-suspicious deaths.'
- India is the only country in South and South-East Asia to conduct virtual autopsies.

3 Web 3.0 and 4.0

Context:

Prime Minister Narendra Modi recently launched 5G services in India which will augment the consolidation of India's position in this new era of Web 3.0 and upcoming era of web 4.0.

Background:

- The long journey of the internet has been divided into generations or phases, though there is no definite beginning or an end, each phase has its own

characteristics or subjectivity.

- Web 1.0 for instance was read-only phase of internet where the internet user merely read the content from search engines, news portals, etc., however the user was not able to interact with the content.
- Web 2.0 introduced a communication factor between the user and the internet where the user was able to like and comment, establishing some sort of interaction between the user and the content. This era marked the emergence of tech giants like Google, Facebook and Amazon.
- Web 3.0 however marks the next phase of internet revolution that takes away the control from a single entity and gives it to the masses. An appropriate example for this is the blockchain technology.
- Web 4.0, also known as the symbiotic web, seeks to establish a symbiosis kind of interaction between the user and the machine. For instance, the interaction with the sensors and implants, virtual reality services, etc.

Web 3.0 and 4.0:

- Web 3.0 and 4.0 is the third and forth iteration of the internet phase respectively.
- Web 3.0 uses block chain technology to make internet intellectually precise, autonomous, open and connected while web 4.0 strives to enhance this technology a notch further, adding higher level of intelligence and sophistication.
- Web 3.0 is a open and transparent network, which is open to community and can monitor the development process, at times may bring changes to it. It uses elements like artificial intelligence and natural language processing which enhances the interaction between the humans and machines, humans and humans while eliminating the need for middlemen.
- Web 4.0 takes a step further, in which the software agents of the user on the internet or on the computer

itself can interact with other such agents and work collaboratively on user's behalf.

Web 3.0 for India:

- Web 3.0 and other upcoming era require cross functioning of several technology like high internet speed, smart devices, Artificial Intelligence/ Machine Learning capabilities, and massive computer power.
- India has been the supporter of web 3.0 from the very start, and is home to almost 230 web 3.0 start ups already.
- According to US-India Strategic Partnership Forum Report, Web 3.0 has the potential to contribute almost USD 1.1 trillion to India's GDP.
- The nation has used this technology for its socio-economic development and greater inclusivity. It has used initiatives like Aadhaar, Jan Dhan, direct benefit transfer, UPI and applications like CoWin to establish a low cost, high impact technology for better life innovation.

Way Forward:

- In this era, where Internet of things (IoT) is the reality, Web 3.0 and 4.0 has the potential to take the world to new possibilities if executed through right hands.
- India can consolidate its position as global tech leader as it has the required talent, knowledge and start-up ecosystem. It should take the first mover advantage and shape policies that governs the development of this revolution. Simultaneously, it should pay huge heed to development of cyber laws that can protect the nation from potential threats.

4 Nightmares are a Good Predictor of Dementia

Context:

According to latest study published in The Lancet's e-Clinical Medical journal, dreams can give away a lot about brain health. Especially, frequent bad dreams or nightmares (dreams that wakes the person up) in middle age may indicate towards future risk of dementia.

Key points:

- The study analysed the data from three major US studies of health and aging, where 600 people of middle age group (35-64 years) and 2600 people belonging to older age group (79 years and above) were followed.
- The middle age group was followed for nine years

while the older group was followed for five years.

- At the beginning of the study, these people were asked array of questions that included the question about how frequent their dreams and nightmares are.
- It was found that people who experienced bad dreams or nightmare once a week had four times higher chance for cognitive decline, while older group were twice likely to be diagnosed with dementia.
- This connection between dreams and future dementia is stronger in men than women.
- Although, this is not clear whether the bad dreams are early signs of dementia or it is because of frequent bad dreams dementia occurs.

What is dementia?

- According to WHO, Dementia is a syndrome, usually progressive in nature, that leads to deterioration of cognitive capability (i.e. capability to process thoughts) beyond what might be expected from usual ageing
- It affects capability of memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement. However, consciousness is not affected.
- Dementia is the 7th major cause for death in the world, one of the prominent cause for disability and dependency of older people. About 55 million people have dementia in the world about and 60% of them belong to poor-middle income countries.
- Though age is the major reason for dementia, the

disease is not exclusive to old people only. In fact, young onset dementia comprises up to 9% of the cases.

- The decline in the cognitive capability can be reduced by being physically active, maintaining weight, eating well, maintaining healthy blood pressure and cholesterol levels etc.
- There are various forms of dementia, Alzheimer's is the most common one followed by vascular dementia, dementia with Lewy bodies etc.

Dementia in India:

- As per rough estimates of 2020, there are almost 5.3 million Indians that had dementia, though this number is conservative but there are chances that this number will be tripled in next 30 years.
- According to the study conducted by Indian Institute of Science, The increasing lifespan and very high burden of diseases such as diabetes, hypertension and obesity are expected to "dramatically" increase the prevalence of dementia in India.
- India has included dementia awareness, diagnosis and care in its National Health Mission.
- Further, Alzheimer's and Related Disorders society of India has been following up with the ministry of Health and Family Welfare, aiding the nation to develop their own national dementia plan.

5 Dark Data, a Cause of Concern

Why in News:

Dark data is becoming a cause of concern for whole world. In a paper, world economic forum noted that more than half of the data is collected for single-use purpose. Single-used data is called dark data. Opposite to popular belief of digital data being carbon neutral, digitization generated 4% of global greenhouse gas emissions in 2020.

About Dark Data:

- Dark data is data that is acquired through various computer network operations but not used in any manner to derive insights or for decision making.
- This could be the multiple near-identical images held on Google Photos or iCloud, a business's outdated spreadsheets that will never be used again, or data

from internet of things sensors that have no purpose.

- In some cases, the organization may not even be aware that the data is being collected.

Reducing the carbon footprint of digital data:

Identify all data:

- Gaining visibility through data mapping and data discovery is a critical first step.

Eliminate dark data:

- Proactive data management can help companies to understand the risks associated with data and decide which data can be deleted.

Minimize and place controls around data:

- Better data classification, flexible retention, and compliant policy engines can allow confident deletion of non-relevant information.

Use of latest technologies:

- Technologies such as the Internet of Things, machine learning, and Artificial intelligence can be used for better targeting of the data and reducing the load of dark data.

Optimising networks and data transmission:

- Improving the carbon efficiency of networks will mean retiring older technologies such as copper, 3G, and 4G, and replacing them with newer ones such as fibre and 5G networks.
- Data workloads become more efficient when shifted to these new technologies, which also helps realize

sustainability at scale as IoT-connected sensors and devices improve the efficiency of farming, supply chains, and energy grids.

Conclusion:

- There is a carbon footprint to every bit stored. Organizations need to start using a green lens to assess data hygiene practices to ensure climate change will not get side-lined.
- It is a reality that the costs of doing business are raising due to climate change, and given the exponential growth in data predicted over the next decade, making data processing and storage more sustainable at every step is now a vital consideration.

6 MoU Between C-DOT and IIT Delhi for Cooperation in Emerging Areas of Telecom

Why in News:

- Recently, C-DOT, the premier Telecom Research and Development Centre under the Ministry of Telecom signed an MoU with IIT Delhi for cooperation in various emerging areas of Telecom like IoT/M2M, AI/ML, Cyber Security and 5G etc.
- The objective of the MoU is to provide indigenous telecom solutions with active collaboration between academia and R&D centre. This will be an effective platform for exchange of knowledge and skill amongst students, faculty and researchers right from the stage of ideation and conceptualization. The platform would act as a catalyst to further the transition of novel ideas into market-ready solutions.



IoT/M2M Technology:

- Machine - to - machine communication, often referred to as IoT/M2M, is one of the fastest emerging technologies around the world. M2M communications refer to automated applications which involve machines or devices communicating through a network without human intervention. Sensors and communication modules are embedded within M2M devices, enabling data to be transmitted from one device to another device through wired and wireless communications networks. It is being used to create smart infrastructure using connected devices in various verticals like power, automotive, security and surveillance, remote health management, agriculture, smart home, industry 4.0, smart city etc.

Artificial intelligence/machine learning:

- Artificial intelligence generally refers to processes and algorithms that are capable of simulating human intelligence, including those that mimic cognitive functions such as perception, learning, and problem solving. Machine Learning and Deep Learning (DL) are subsets of AI.
- Machine learning is a subset of artificial intelligence that fall within limited memory category in which machine is able to learn and develop over the time.

About emerging telecom technology:

Cyber security:

- Cyber security is the practice of protecting critical systems and sensitive information from digital attacks. It is also known as information technology (IT) security.

About telecom sector:

- India is the world's second-largest telecommunications market with a subscriber base of 1.16 billion and has registered strong growth in the last decade.

Government Initiative for Telecom:

- 5G was launched by the Government of India on 1 October.
- To drive the development of 6G technology, the Department of Telecommunications (DoT) has developed a sixth generation (6G) innovation group.
- In October 2021, Telecom Secretary Mr. K. Rajaraman

inaugurated the Quantum Communication Lab at the Centre for Development of Telematics (C-DOT), Delhi, and unveiled the indigenously developed Quantum Key Distribution (QKD) solution by C-DOT.

- PM WANI scheme for providing public Wi-Fi services through public data office.

Conclusion:

- India is in the advanced stage for the development of new technology, but it is also expected that the country should create a data protection system that protects the incidents of data breach.

7

2022 Nobel Prize in Medicine for discoveries on human evolution

Why in News:

- Swedish geneticist Svante Paabo won the 2022 Nobel Prize in Physiology or Medicine for discoveries that underscore our understanding of how modern people evolved from extinct ancestors early in human history.
- Paabo's work demonstrated practical implications during the COVID-19 pandemic when he found that people infected with the virus who carry an inherited gene variant from Neanderthals have a higher risk of severe disease than those who do not.

Paabo's research:

- Dr. Paabo's ground breaking research seeks to answer for human evolution. They sequenced the genome of Neanderthals, a species of humans that existed on Earth and became extinct about 30,000 years ago. He also discovered Denisova—a previously unknown hominin. Hominins are extinct members of the human lineage. Dr. Paabo's research led him to conclude that the gene transfer from these now extinct hominins to Homo sapiens occurred after they migrated out of Africa about 70,000 years ago.

Main points of the research

- He has studied mitochondrial DNA from Neanderthals. Mitochondria, known as the

powerhouse of the cell, is an organelle inside the cell that has its own DNA.

- Its comparison with contemporary humans and chimpanzees showed that Neanderthals were genetically distinct.
- In 2010, he published the first Neanderthal genome sequence.
- The DNA sequences of Neanderthals were also found to be more similar to sequences from contemporary humans originating from Europe or Asia than to contemporary humans originating from Africa, suggesting crossbreeding between Neanderthals and Homo sapiens during their coexistence.
- Five extant human genomes from different regions—Southern Africa, West Africa, New Guinea, Chinese and Western Europe—were sequenced and analyzed against the Neanderthal genomes obtained from the experiment, to put the differences in the DNA of the two in perspective. It was noted that the divergence of the Neanderthal genome from the human reference genome was greater than that of any extant human genome that was analyzed.

DNA

- Deoxyribonucleic acid, more commonly known as DNA, is a complex molecule that contains all of the information necessary to build and maintain an

organism. All living things have DNA within their cells.



the biological information that cells use to grow and operate.

Neanderthal

- Neanderthal was very early humans who lived in Europe and Western Asia and extinct about 30000 years ago. Denisovans are another population of early humans who lived in Asia and were distantly related to Neanderthals.

Conclusion:

- Dr Paabo's research has resulted in the rise of a new scientific discipline called paleogenomics, which is the study and analysis of genes of ancient or extinct organisms. His conceptual breakthrough is of paramount importance in understanding human evolution, but at the same time, his technological breakthrough deserves equal praise.

DNA sequencing

- DNA sequencing refers to the general laboratory technique for determining the exact sequence of nucleotides, or bases, in a DNA molecule. The sequence of bases (often referred to by the first letters of their chemical names: A, T, C, and G) encodes

Available Optional Subjects

ENGLISH MEDIUM

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1 India Ranks First in Sugar Production in the World

Context:

- Recently, India has overtaken Brazil to become the first in the world in sugar production.
- India is currently the largest consumer of sugar as well as the second largest exporter in the world.
- India is also the largest producer of sugarcane in the world.

Sugar Industry:

- Sugar industry is an important agro-based industry affecting the rural livelihood of about 50 million sugarcane farmers and 5 lakh workers directly employed in sugar mills.
- 521 mills operated in the session 2021-22 as against 506 mills operated in the previous season.

Achievements related to sugar production of India:

- A record sugarcane production of over 5,000 lakh metric tonnes has been done.
- About 3574 LMT of sugarcane has been processed to produce 394 lakh metric tonnes of sugar (sucrose).
- Payment of 1.18 lakh crore to sugarcane farmers was made on time for the purchase of sugarcane.
- Ethanol was produced from 35 lakh metric tonnes of sugar.
- India's ethanol production capacity has increased to 605 million liters, strengthening the target of using 20% ethanol by 2025.
- A record sugar export of 109.8 lakh metric tonnes was done, with a profit of Rs. 40,000 crore received.
- Due to the proactive policies of the Central Government in the last few years including encouraging export of excess sugar and conversion of sugar into ethanol, the sugar industry has now become self-reliant.

Suitable conditions for sugarcane cultivation in India:

- Sugarcane is cultivated in all types of soils from sandy loam to clay loam.
- Temperature required between 21-27°C with hot and humid climate.
- About 75-100 cm of rainfall required.
- Sugar, jaggery, khandsari and raab etc. are made from sugarcane.
- It requires a lot of labor for its cultivation.

Top sugarcane producing states in India:

1. Uttar Pradesh
2. Maharashtra
3. Karnataka.

Top sugar producing states in India:

1. Maharashtra
2. Uttar Pradesh

The Government of India is running two schemes for the promotion of sugar industry-

- Scheme to provide financial assistance to sugar mill undertakings.
- National Policy on Biofuels Sugarcane Production Scheme.

Sugarcane Pricing in India:

- Payment of Fair and Remunerative Price (FRP) in India is governed by the Sugarcane Control Order 1966 issued under the Essential Commodities Act, 1955.
- The Fair and Remunerative Price (FRP) is determined by the Central Government while the State Advisory Price (SAP) is determined by the State Governments.
- The State Advisory Price fixed by the State Governments is higher than the Fair and Remunerative Price of the Central Government.
- Fair and remunerative price of sugarcane was recommended by the Rangarajan Committee on the basis of the report submitted on October 05, 2012.
- At present, the determination of fair and remunerative price of sugarcane is announced by the Cabinet Committee on Economic Affairs on the recommendation of the Commission for Agricultural Costs and Prices.

Way Forward:

- The central government, state governments, farmers, sugar mills and ethanol distilleries etc. have contributed significantly to the success of the sugar industry in India.
- In future, the government should provide financial and technical support to farmers for balanced sugarcane cultivation to increase ethanol production and reduce oil import costs.
- The Agricultural Costs and Prices Commission is an advisory body whose recommendations are not binding on the government. It is an associated office of the Ministry of Agriculture and Farmers.

2 Economic impact of festivals

Why in News:

- Covid-19 pandemic that derailed the economy since 2019, the Durga puja festival saw a 20-30% jump in spending. Not just fun and frolic, Durga Puja in West Bengal is a grand economic affair involving transactions of at least Rs 40,000 crore, creating employment opportunities for around three lakh people. Besides Durga puja many other festivals will be celebrated across the country between Octobers and November.
- These festivals can boost the economic activity in the country. Peoples all over the country started buying goods to celebrate the festival with full fervour and joy.

Other aspect of festival:

- Retail sector is key contributor during festive season.
- Provide "K shaped" recovery of Indian economy.
- SGDP of state and GDP of the country may get a boost.
- It can boost make in India programme.

Benefits of Festival Economy:

- Provides job at village level. It includes both skill and unskilled labour.
- Boost tourism in the country and increase in revenue for the state.
- Increase cultural soundness of India.

- Create a joyful environment and reduce stress of people.

Recent study on economic impact of festival:

- When festival dates fall during the planting and harvesting seasons, this can negatively affect economic output. This is because labour and other resources get redirected towards festival-related activities rather than being invested in agricultural activities. When this happens, the negative economic effects may be particularly pronounced. In other words, festivals can come with a higher opportunity cost when they happen during certain seasons of the agricultural cycle. Festivals may also lead people to increase their consumption, which in turn lowers investment and significantly affects long-run economic growth.

Conclusion:

- Now, we have two perspectives on the economic impact of festivals, so it is a very difficult task to assess these scenarios. If seen, most of the people in India are farmers and in festivals they spend much more than their income, due to which they get stuck in debt and do not invest in agriculture. Ultimately this scenario affects the growth of the agricultural economy which has an impact on the entire economy.

3 Global Recession at Doorstep

Why in News:

A recent study by the World Bank flagged the concern of a global recession due to frequent hikes in interest rates by central banks across the globe. The hike in the interest rate by the central bank is to counter inflation. The most severe impact of recession will be on emerging markets, which are expected to fall into financial crisis.

Recent trends of world economy:

- Consistent interest rate hikes by central banks around the world, have not been seen in the last five decades. Due to which the world is going towards recession.
- Increase in interest rates is not sufficient to bring down inflation. Other supply side measures are

required.

- Investors are expecting a rate hike of 4 percent from the central banks by 2023, which is an indication of further interest rate hike in the future.
- To bring global inflation down to its target rate, central banks may need to raise interest rates by an additional 2% which can result in further recession.

Concerns flagged by the World Bank study:

- The study highlights the unusually appalling conditions under which central banks are fighting inflation today. Several historical indicators are already warning of a global recession. The global economy is now in its sharpest recession since 1970.

Global consumer confidence has already suffered a much sharper decline than in the previous global recession. The world's three largest economies—the United States, China and the euro area—are slowing down rapidly. Under these circumstances, even a minor hit to the global economy in the next year could propel it into recession. This recession could long last for developing market due to low fiscal space and high dependence on imports.

- However, the threat of inflation and limited fiscal space are prompting policymakers in many countries to withdraw policy support, even as the global economy slows sharply. Thus it has become a very disturbing situation for the whole world and is posing a greater threat than the previous recession.

Actions required countering this situation:

- Central bank must communicate policy decisions clearly while safeguarding their independence. In advanced economies, central banks should keep in mind the cross-border spillover effects of monetary tightening. In emerging market and developing economies, they should strengthen macro prudential regulations and build foreign-exchange reserves.
- Fiscal authorities will need to carefully calibrate the withdrawal of fiscal support measures while ensuring

consistency with monetary-policy objectives.

- Other economic policy makers may need to join the fight against inflation—particularly by taking strong steps to boost global supply. These include:
 - » Policy measures need to help increase labor-force participation and reduce price pressures.
 - » Global coordination can go a long way in increasing food and energy supply. For energy commodities, policymakers should accelerate the transition to low-carbon energy sources and introduce measures to reduce energy consumption.
 - » Policymakers should cooperate to alleviate global supply bottlenecks. They should support a rules-based international economic order, one that guards against the threat of protectionism and fragmentation that could further disrupt trade networks.

Conclusion

To achieve low inflation rates, currency stability and faster growth, policymakers could shift their focus from reducing consumption to boosting production. Policies should seek to generate additional investment and improve productivity and capital allocation, which are critical for growth and poverty reduction.

4 Nobel Prize in Economics

Why in News:

- The Nobel Memorial Prize in Economic Sciences was awarded to former US Federal Reserve Chairman Ben S. Bernanke and two other academics Douglas W. Diamond and Philip H. Dybvig for their research on banks and financial crises.

About the research:

- Ben Bernanke, Douglas Diamond and Philip Dybvig have been awarded the Nobel Prize for their research in topics such as banks, bank regulation, banking crises and how financial crises should be managed.

Contribution of Ben Bernanke:

- He analyzed the Great Depression of the 1930s, the worst economic crisis in modern history.
- He proved how the economic downturn caused by the bank run crisis was prolonged.
- Using historical sources and statistical methods,

Bernanke's analysis revealed which factors were important in the decline in GDP. They found factors that were directly linked to failing banks were most likely responsible for the recession.

Contributions of Douglas W. Diamond and Philip H. Dybvig:

- He developed theoretical models that explain why banks exist, their role in society making them vulnerable to rumors about their imminent collapse and how rumors can be worked out in society.
- He presented a solution to the bank's vulnerability, in the form of deposit insurance on behalf of the government. When depositors learn that the state has guaranteed their money, they don't feel the need to go to the bank as soon as rumors start about running the bank because they trust the government.

About the Economics Nobel Prize

- Economics Nobel Prize was established by the Swedish central bank in his memory. It was not in the 1895 will of Alfred Nobel. In 1969, Ragnar Frisch and Jan Tinbergen were awarded the first prize in economic science.

Conclusion

- By their research, major economies across the world

can reduce the risk of financial crises developing into long-term depressions with severe consequences for society, which is of the greatest benefit to us all.

5 Card Tokenisation in India

Why in News:

- The new rules for credit and debit cards by Reserve Bank of India (RBI) have come into effect from October 1. These include tokenization of card, written permission to increase credit limit and more clarity on interest calculation.
- The RBI has directed all merchants to delete customers debit and credit card data by September 30 and replace it with tokens for online transactions. Failure to comply with the direction may invite penal action, including business restrictions.

phone and tablets for all use cases like as contactless card transactions, payment through QR code and app.

3. Tokenisation of card is not mandatory for consumers.
4. Customers have the option to register / de-register their card for a particular use case, i.e., contactless, QR code based, in-app payments, etc.
5. The registration for a tokenisation request is done only with explicit customer consent through Additional Factor of Authentication (AFA).

About tokenisation of card:

- Debit and credit card details like 16-digit card number, name, expiry date and CVV are required during an online transaction. The online platforms used by customers also provide an option to save card data for easy completion of transactions in future. This data is known as card on file. However, this puts sensitive details at risk of being compromised by cyber-attack. To counter this challenge RBI has come with card tokenisation.
- Tokenisation refers to replacement of actual card details with an alternate code called the token. The card holder can get the card tokenised by initiating a request on the app provided by the token requestor. The token requestor will forward the request to the card network which, with the consent of the card issuer, will issue a token corresponding to the combination of the card, the token requestor, and the device.

Benefit of card tokenisation:

- Tokenisation will enhance card security by making each card uniquely identifiable to each merchant; fraud can be reduced
- Tokenised cards are viewable on the merchant portal, and a new token is generated each time when the card is changed, renewed, reissued or upgraded.
- Cardholders using multiple cards will be provided with a portal for managing the tokenized cards. Cardholders can view/delete the token associated with the respective card through this portal.

Feature of tokenisation

1. The customer need not pay any charges for availing this service.
2. Tokenisation has been allowed through mobile

Conclusion:

- India ranked first in number of digital payment transactions in 2020, ahead of China, South Korea, Thailand and the UK. Last year, instant payments accounted for 15.6% of all transactions while other electronic payments had a 22.9% share in India. Thus, this type of service by central bank is very appreciable for future growth.

6 Increase in Direct Tax Revenue

Why in News:

- Gross direct tax collections including corporate and personal income tax rose nearly 24 per cent so far in the current financial year to Rs 8.98 lakh crore, the tax department said on Sunday.
- This includes a 32.3 per cent growth in personal income tax (including Securities Transaction Tax) mop up and 16.73 per cent increase in corporate tax revenues over the same period last year.

Factors responsible for rise in tax collection

Stable Government Policies:

- This is the result of stable policies of the government focusing on simplification and streamlining of processes and preventing tax leakage through effective use of technology.

Effective Filing of Income Tax Return:

- There has been a significant increase in the speed of processing of Income Tax Returns filed during the current financial year.
- The IT department has successfully used technology to reach out to the assesses in a non-intrusive manner; For example, sending an email reminding them to file a return.

Economic recovery:

- GST collections rose 28 per cent year-on-year to Rs 1.43 trillion on better compliance, improved consumption and increased inflation. Thus it also increased the direct tax of government through corporate tax.
- The level of economic recovery can also be seen from the value of e-way bills which has increased from 16.9 lakh crore in 2021 to 25.7 lakh crore in 2022.

Corporate tax:

- Corporate tax is currently rising by around 25-26%.
- Efficient Valuation of Income:
- Intensive and widespread use of data analytics and artificial intelligence has led assessments to accurately report people's income.

What is Direct Tax?

- Direct tax is paid by a person or organization which

is directly responsible for paying the tax to the entity which levied it.

- An individual taxpayer, for example, pays direct taxes to the government for a variety of purposes, including income tax, real wealth tax, personal wealth tax, or tax on property.
- Direct taxes are based on an economic principle that states that those who have more resources or earn more income should bear a higher tax burden.

What is tax Buoyancy?

- The tax buoyancy explains this relationship between changes in government tax revenue growth and changes in GDP.
- It reflects the response of tax revenue growth to changes in GDP.
- When a tax is buoyant, its revenue increases without raising the tax rate.
- There is a strong correlation between government tax revenue income and economic growth.
- The simple fact is that as the economy attains rapid growth, the tax revenue of the government also increases.

What is tax elasticity?

- A similar looking concept is tax elasticity.
- It refers to change in tax revenue in response to change in tax rate.
- For example, if the government cuts corporate income tax from 30 percent to 25 percent, how tax revenue changes reflects tax elasticity.
- Factors responsible for increase in tax collection.

Conclusion:

- The Reserve Bank of India (RBI) last month cut its production of India's GDP growth in the current fiscal to 7 per cent from 7.2 per cent previously estimated. Other rating agencies too have lowered the economic growth projection for India citing impact of the geopolitical tensions, tightening global financial conditions and slowing external demand. Rise of direct tax put some hope of recovery of Indian economic.

7 India's Merchandise Exports

Why in News:

- India's merchandise export in April -September 2022-23 was USD 229.05 billion with an increase of 15.54% over USD 198.25 billion in April -September 2021-22.
- The export of non-petroleum and non-gems and jewellery in April -September 2022-23 was USD 158.68 billion, an increase of 5.53% over April -September 2021-22.
- India has achieved merchandise export of USD 32.62 billion in September 2022 with a decrease of 3.52% over USD 33.81 billion in September 2021-22.
- Trade deficit in September 2022 was USD 26.72 billion which is an improvement over trade deficit of USD 28.68 Billion in August 2022.

Importance of the data:

- India is not going to see recession.
- India's basic economic fundamentals are strong.
- Positive impact of PLI scheme in increasing merchandise exports.

Exports of Top 10 Major goods in term of rupee (September 2021- September 2022):

- Engineering goods
- Petroleum products
- Gems and jewellery
- Organic and inorganic chemicals
- Drug and Pharmaceuticals
- Electronic goods
- RMG of all textiles
- Cotton yarn, fab, medeups, handloom products
- Rice
- Plastic and Linoleum

Problems faced by Indian exporter:

- Inconsistent policy of government.
- Lack of basic Infrastructure for exporting the goods.
- Protectionist measures adopted by overseas governments.
- Low financial capacity of exporter and less incentive from government.

Measures taken by Government for promotion of exports:

- Schemes such as the Advance Authorization Scheme

and the Export Promotion Capital Goods (EPCG) Scheme are being implemented to enable duty free import of raw materials and capital goods for export production.

- Remission of Duties and Taxes on Exported Products (RoDTEP) scheme has been operationalized for exports with effect from 01.01.2021.
- It has been decided to extend the Rebate of State and Central Levies and Taxes (RoSCTL) Scheme for apparel and made-up exports till March 2024.
- Transport and Marketing Assistance (TMA) scheme for specified agriculture products provides assistance for the international component of freight and marketing of agricultural produce and to promote brand recognition for Indian agricultural products in the specified overseas markets.
- A common digital platform for Certificate of Origin (CoO) has been launched to increase Free Trade Agreement (FTA) utilization by exporters.
- In April 2022, India and the EU agreed to launch the EU-India Trade and Technology Council and planned to sign a free trade agreement by 2023.
- As of April 2022, India has signed 13 Free Trade Agreements (FTAs) with its trading partners including major trade agreements like the India-UAE Comprehensive Partnership Agreement (CEPA) and the India-Australia Economic Cooperation and Trade Agreement (IndAus ECTA).



Conclusion:

- Amid the recovery in the global demand after the Covid-19 pandemic, India's merchandise exports have been reviving rapidly in the past few months, supported by the recovery in global demand. The merchandise sector of India is expected to rise sharply in the coming years and will be a crucial contributor to India's US\$ 5 trillion economy goal.

1 Global Innovation Index- 2022

Context:

- Recently the Global Innovation Index, 2022 was released by the World Intellectual Property Organization.
- The theme of the Global Innovation Index - 2022 is 'What is the future of Innovation driven growth'.

Global Innovation Index:

- It is an annual index which is prepared on the basis of the skill capacity and achievements of the countries in the field of innovation. This is the 15th edition of the Innovation Index which was started in the year 2007. A total of 132 countries have been included in this year's index.
- The key indicators of this index are institutions, human capital and research, infrastructure, market and business structure, knowledge and new technology.

Key points related to the index:

- Five countries at the top level - 1. Switzerland, 2. USA, 3. Sweden, 4. UK, 5. Netherlands
- Five countries at low level - 132. Guinea, 131. Iraq, 130. Burundi, 129. Mauritania, 128. Yemen

India's position:

- India is ranked 40th in the index for the year 2022 with a score of 36.6.
- India's rank has improved a lot as compared to previous years. India's rank was 46 in the year 2021 and 81 in 2015.
- India has emerged as an innovation leader among lower middle income countries. India has become one of the top exporters of information, communication and technical services.
- Globally, R&D expenses increased by almost 10% in 2021 as compared to 2019, ie more than US\$ 900 billion has been spent on R&D.



Situation of India's Neighboring Countries:

- Sri Lanka (85th rank), Pakistan (87th rank), Nepal (111th rank)

Status of BRICS countries:

- Brazil - 54th rank, Russia - 47th rank, India - 42nd rank, China - 11th rank and South Africa - 61st rank

Role of Government of India in promoting innovation:

- Digital India
- Fast growing unicorn (valued at US\$1 billion or more)
- Start-up India
- Atal Tinkering Lab
- Innovation in Science Pursuit for Inspired Research Program
- Kiran Scheme
- Smart India Hackathon
- Atal Innovation Mission
- Biotechnology Ignition Grant Scheme
- Future Skill Prime
- Spark Initiative
- New Education Policy : 2022

World Intellectual Property Organization:

- This organization was established in 1967 AD, which is headquartered in Geneva, Switzerland. Its total number of member countries is 193.
- This organization has two main objectives:
 1. Promote the protection of intellectual property around the world.
 2. Ensuring administrative cooperation between intellectual property associations.

Way Forward:

- In India, NITI Aayog is playing an important role in the field of innovation at the economic and technical level, but for the better environment and infrastructure development of the country as a whole, the Government of India should spend more on education and research and development.

2 World's Largest Museum on Harappan Culture

Why in News:

- The world's largest museum on Harappan culture is currently being established in Rakhigarhi, Haryana.

The Museum:

- The Museum on Harappan Culture at Rakhigarhi will display artifacts dating back to the Indus Valley Civilization, about 5,000 years old.
- This world class museum will display photographs depicting the history of Rakhigarhi.
- This under-construction museum will give recognition to Rakhigarhi at international and national level as well as increase employment opportunities for the local people.
- A special zone is being created in the museum to give important information related to history to the children in an entertaining way.
- An amphitheatre and a library will also be built in the museum.

Rakhigarhi:

- Rakhigarhi is an ancient Harappan site situated near the rivers Saraswati and Drishadvati in Hisar district of Haryana. Its main river is Ghaggar. It was first excavated in 1969 by Suraj Bhan. It is the largest historical site of the Indus Valley Civilization after

Dholavira in India. Rakhigarhi was excavated on a large scale during 1997-1999 AD by Amarendra Nath. Since 1998, 56 skeletons have been discovered from this site. The presence of shell bangles in this site provides evidence of trade links to distant places such as Afghanistan, Balochistan, Gujarat and Rajasthan. The people of this civilization are known to melt precious metals like copper, carnelian, agate and gold to make beads.

Development of 5 ancient sites:

- During the Union Budget 2020, the Central Government has announced proposal to develop museums at five iconic sites namely Rakhigarhi (Haryana), Hastinapur (Uttar Pradesh), Sivasagar (Assam), Dholavira (Gujarat) and Adichanallur (Tamil Nadu) with a total outlay of Rs 2500 crore.

Harappan Civilization:

- This civilization is also known as Indus Valley Civilization.
- This civilization developed in the western part of South Asia (present-day Pakistan) around 2500 AD.
- Harappan civilization is considered to be one of the four oldest urban civilizations like Egyptian, Mesopotamian and Chinese civilization.

3 Cough syrup controversy and loopholes in Indian pharmaceutical system

Why in News:

Gambia alleged that kidney injuries due to India-made cough syrup caused the death of 66 children in the past three months. Medicines produced in India are known for their quality in the international market. But the recent developments have brought the Indian medical products under the scanner. Drug production in India is regulated under Drugs and Cosmetics act, 1940.

About the issue

- The products - Promethazine Oral Solution, Kofexmalin Baby Cough Syrup, Makoff Baby Cough Syrup and Magrip N Cold Syrup - were manufactured by an Indian company, Maiden Pharmaceuticals, which has caused the death of 66 children in Gambia. The issue has created uproar

about Indian medical products.

- WHO has warned about these syrups and blamed Indian company for death in Gambia. Taking serious note of the issue, government has started investigating the matter. Central Drugs Standard Control Organization (CDSCO) is India's regulatory body that deals with drugs, cosmetics, and pharmaceuticals.
- CDSCO has took up the matter with Haryana State Regulatory Authority, under whose jurisdiction the drug manufacturing unit of M/s Maiden Pharmaceutical Limited, Sonapat, is located.
- Further, a detailed investigation was launched to ascertain the details in the matter in collaboration with the State Drugs Controller, Haryana.
- Primary inquiry reveals that none of the four drugs

potentially linked to the death of 66 children in Gambia are being sold in India currently, Company had permission only for export of these products and that the company had manufactured and exported them only to Gambia.

Effects of this incidence:

- India may lose confidence as the world's leading drug supplier.
- This may create doubt in the mind of Indian people towards Indian medicine.
- India may lose African market for selling Indian medicines.
- The Government of India may lose foreign exchange and the people of India may lose their jobs.
- India's goods exports will decrease and the trade deficit will increase.

Major loopholes in Indian drug market:

- Many companies had in past repeatedly violated the drug norms, but no strict action was taken.
- E pharmacy is poised to become major supplier of the medicine to Indian people, unfortunately no specific provision deals with it in drugs and cosmetics act, 1940.
- High drug prices and loopholes in India's IPR system.

The Drugs and Cosmetics Act, 1940:

- The Drugs and Cosmetics Act, 1940 is an Act of the Parliament of India that regulates the import, manufacture and distribution of drugs in India.

The primary objective of the Act is to ensure that medicines and cosmetics sold in India are safe, effective and conform to state quality standards.

About CDSCO:

- The Central Drugs Standard Control Organisation (CDSCO) is the National Regulatory Authority (NRA) of India. It is headquartered in New Delhi.
- The Drugs & Cosmetics Act, 1940 and rules 1945 have entrusted various responsibilities to central & state regulators for regulation of drugs & cosmetics.
- Under the Drugs and Cosmetics Act, CDSCO is responsible for approval of Drugs, Conduct of Clinical Trials, laying down the standards for Drugs, control over the quality of imported Drugs in the country and coordination of the activities of State Drug Control Organizations by providing expert advice with a view of bring about the uniformity in the enforcement of the Drugs and Cosmetics Act.

Conclusion:

- The pharmaceutical industry in India forms an important part of the country's foreign trade and offers attractive potential for investors. Millions of people across the world get affordable and affordable generic medicines from India. India also runs a large number of plants that follow the Good Manufacturing Practices (GMP) standards set by the World Health Organisation.

4

ASI found 26 Buddhist caves in Bandhavgarh, MP

Why in News:

- In a major discovery, ASI has unearthed amazing archaeological remains in Bandhavgarh tiger Reserve in Madhya Pradesh. 26 ancient temples/relics from the Kalachuri period (9th century CE to 11th century CE), 26 caves (2nd century CE to 5th century CE mostly related to Buddhism), 2 monasteries, 2 stupas, 24 Brahmi inscriptions (2nd century CE to 5th century CE), 46 sculptures, 20 scattered relics and 19 water formations (2nd to 15th century CE) have been found. Among the 46 sculptures there is also a Varaha sculpture, which is one of the largest sculptures.

Important points:

- The archaeological remains date back to the reign of King Shri Bhimsena, Maharaja Pothasiri, and Maharaja Bhattadeva. The inscriptions mention places like Kaushami, Mathura, Pavata (Parvata), Vejabbharada and Sapatanaairikaa. Also the Buddhist Caves belong to the Mahayana sect of Buddhism. The written history of Bandhavgarh is believed to date back to at least 2nd century AD, from the remains found in the surveys so far. It is clear from the records obtained from this region that it was under the Magha dynasty for a very long time.
- After the Magha dynasty, many other dynasties ruled

here, including the Gupta rulers and the Pratihars. Later the Kalachuris ruled the region. The rule of the Kalachuris can be called the golden period of this region. The Kalachuris had arrived in the 9th century. The Kalachuri dynasty was founded by Kokalla I in about 845 AD. Kokalla I made Tripuri his capital. He has built a large number of temples and statues around the Bandhavgarh forest. The colossal statue of Seshasayee Vishnu and other images of incarnations of Vishnu, Ganesha idols, temples etc. are associated with the Kalachuri period. Various inscriptions of the Kalachuri king Yuvrajdev-I have been received from Bandhavgarh.

About ASI Research:

- An ASI team unearthed these ancient things in the Bandhavgarh Tiger Reserve area after a month-long search in an area of about 170 sq km. The work of exploration was started here for the first time after 1938. The discovery was made under ASI's Jabalpur circle. The said search operation in the Tiger Reserve

has been done under the direction of archaeologist Shivkant Bajpayee.

- The Archaeological Survey of India, under the Ministry of Culture, is a premier organization for archaeological research and conservation of the nation's cultural heritage. It was founded in 1861 by Alexander Cunningham, the first Director General of ASI. Alexander Cunningham is also known as the "Father of Indian Archaeology".

Conclusion:

- Bandhavgarh has an ancient archaeological background, but the area was not properly surveyed for a long time. The meaning of Bandhavgarh is of mythological importance. This place is mentioned in Narada Pancaratra and Shiva Purana. This new discovery will give more information about the history of this region.

5

Poverty and Shared Prosperity Report 2022

Why in News:

- Recently, the World Bank has released the Poverty and Shared Prosperity-2022 report.
- Title of this report- Correcting Course.

Highlights of the report:

- By 2030, the goal of ending the world's extreme poverty is unlikely to be met.
- 70 million people fell into poverty in 2020, the biggest one-year increase since global poverty monitoring began in 1990.
- An estimated 719 million people live on an income of less than \$2.15 a day by the end of 2020.
- Global poverty reduction has been slowing since 2015, but the COVID pandemic and the Russian-Ukraine war have completely changed the results.

Inequality:

- Global inequality has increased for the first time in decades.

Poverty level in India:

- According to the World Bank, poverty has declined

over the past decade but not as much as previously estimated.

- Extreme poverty in India was 12.3% lower in 2019 than in 2011, as the number of poor declined from 22.5% in 2011 to 10.2% in 2019, with a comparatively sharp decline in rural areas.
- Poverty reduction was higher in rural areas as compared to urban India as rural poverty declined from 26.3% in 2011 to 11.6% in 2019, while the decline in urban areas declined from 14.2% to 6.3% over the same period.

Poverty Estimates:

- Poverty in India is estimated by the Task Force of NITI Aayog under the Ministry of Statistics and Program Implementation (MOSPI) through the calculation of the poverty line based on data obtained by the National Sample Survey Office.
- The poverty line estimates in India are based on consumption expenditure and not on the income level.

What is poverty?

- It is a multidimensional concept. It can be defined as a situation in which an individual or family lacks the financial resources to afford a basic minimum standard of living.
- Economists and policymakers estimate "absolute" poverty as the reduction in consumption expenditure by a threshold called the "poverty line".

Committees on Estimation of Poverty in India so far:

- 1962 Working Group
- V N Dandekar and N Rath in 1971
- YK Alagh in 1979
- DT Lakdawala in 1993

- Suresh Tendulkar in 2009
- C Rangarajan in 2014.

Initiatives of Government of India-

- Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGA)
- Deendayal Antyodaya Yojana - National Rural Livelihoods Mission
- Deen Dayal Upadhyay - Grameen Kaushalya Yojana
- Prime Minister's Housing Scheme
- Pradhan Mantri Gram Sadak Yojana
- Pradhan Mantri Jan Dhan Yojana
- Prime Minister Kisan Samman Nidhi
- Integrated Rural Development Program

6 Nobel Peace Prize 2022

Why in News:

- Human rights advocate Ales Bialiatski from Belarus, Russian human rights organization "Memorial" and Ukrainian human rights organization Centre for Civil Liberties have been awarded the Nobel Peace Prize for 2022. The Nobel Peace Prize 2022 is given to honour the three outstanding champions of human rights, democracy and peaceful coexistence in neighboring Belarus, Russia and Ukraine.

Ales Bialiatski:

- Ales Bialiatski was one of the initiators of the democracy movement that emerged in Belarus in the mid-1980s. He devoted his life to promoting democracy and peaceful development in his country Belarus. He founded the Vaysana (Spring) organization in 1996 in response to controversial constitutional amendments that triggered widespread protests across the country.

Russian Human Rights Organization "Memorial":

- The memorial was established in 1987 by human rights activists from the former Soviet Union, who wanted to ensure that the victims of the oppression of the communist regime would never be forgotten. Nobel Peace Prize laureate Andrei Sakharov and human rights advocate Svetlana Gannushkina were among the founders. After the collapse of the Soviet Union, Memorial became the largest human rights organization in Russia.

Centre for Civil Liberties:

- It was founded in Kyiv in 2007 with the aim of advancing human rights and democracy in Ukraine. The centre has taken a stand to strengthen Ukrainian civil society and pressured the authorities to make Ukraine a full-fledged democracy. In order to develop Ukraine into a state governed by the rule of law, the Centre for Civil Liberties has actively advocated that Ukraine become affiliated with the International Criminal Court.
- Following Russia's invasion of Ukraine in February 2022, the Center for Civil Liberties has engaged in efforts to identify and document Russian war crimes against the Ukrainian civilian population. In collaboration with international partners, the Centre is playing a leading role in holding the guilty parties accountable for their crimes.

Conclusion:

- Belarus has criticized Bialiatski for the Nobel Prize, while the Ukrainian President has praised the award given to the Centre for Civil Liberties, which shows that the Nobel Prize has also been politicized. This is not the first time that this is happening, even before this, many times such allegations have been made on the Nobel Prize. It will now be important for the Nobel Committee to stay away from such controversies.

7 Mawmluh Cave

Why in News:

- Recently, UNESCO has selected Mawmluh Cave in Sohra, Meghalaya among the first 100 IUGS geological sites in the world. IUGS stands for International Union of Geological Sciences which recognizes important geological sites around the world under the auspices of UNESCO.
- In view of this achievement, Meghalaya Chief Minister Conrad Sangma has recently said that the 60th anniversary program of IUGS is to be held at the UNESCO Global Geopark (Spain) where the first 100 IUGS geological heritage sites have been announced out of 181 candidate sites from 56 countries.

About the cave:

- Locally known as Krem Mawmluh, this cave is located about half a kilometer west of Cherrapunji in Meghalaya. This place is one of the major tourist attractions. Mawmluh Cave in Sohra, Meghalaya is one of the longest caves in the Indian subcontinent as it extends for about 7000 m. This cave is also known for the "Meghalayan Age".

About IUGS:

- IUGS is an international non-governmental organization dedicated to international cooperation in the field of geology. It was established in the year 1961. Geologists from 121 countries (and territories) are currently represented in the IUGS. The IUGS Secretariat is headquartered in Beijing. It collaborates with other organizations to work on subject-specific commissions, working groups, initiatives and joint programmes.
- IUGS organizes international projects and meetings, undertakes seminars and scientific field trips, with the aim of promoting dialogue and communication between different parties specializing in Earth sciences.

UNESCO

- The United Nations Educational, Scientific and Cultural Organization (UNESCO) is a constituent body of the United Nations. Its task is to promote international peace through education, nature and social science, culture and communication. This

special institution of the United Nations was formed on 16 November 1945. Its purpose is to establish peace and security through the international cooperation of education and culture, so that there is a global consensus for justice, the rule of law, human rights and fundamental freedoms as enshrined in the Charter of the United Nations.



Conclusion:

- India is endowed with such rich sites which have been recognized by various organizations of the world including UNESCO in the past. Only after collecting sediments from a stalagmite from the Mawmluh cave in Meghalaya, the climatic event in the Meghalayan age was defined.





Current Affairs

NEWS OF NATIONAL AND INTERNATIONAL IMPORTANCE

1. 'Hyper local' approach to restore Thamirabarani River

The district administration of Tirunelveli in Tamil Nadu along with NGOs and local communities have adopted a 'hyper local' approach to restore the socio-ecological systems of the whole river, under a project called TamiraSES.

About the River:

Thamirabarani River also called as Tamraparni or Porunai, it is the only perennial river in Tamil Nadu. It originates and ends in the same state. It originates from the Agasthyarkoodam peak in the Pothigai Hills of the Western Ghats in Tirunelveli district. The river flows through Tirunelveli and then neighbouring Thoothukudi and ends in the Gulf of Mannar at Punakayil. The river supports wildlife such as the Nilgiri marten, slender loris, lion-tailed macaque, white spotted bush frog, galaxy frog, Sri Lankan Atlas moth and the great hornbill. A study published in 2021 found that paddy and soil discovered in an urn during an archeological excavation near the river in Thoothukudi district's Sivakalai were at least 3,200 years old. The objective of the project is to bring it to drinking water quality by 2024.



2. Bhagat Singh Airport

The Prime Minister announced that the Chandigarh airport will be renamed after Bhagat Singh as a tribute to the freedom fighter.

The ₹485-crore Chandigarh Airport is a joint venture of the Airports Authority of India (AAI) and the governments of Punjab and Haryana. Punjab and Haryana have 24.5% share each, while the AAI has 51% share. To change the name of an airport a resolution has to be first passed by the state assembly. Then it has to be passed by the Union cabinet and finally notified in the Gazette of India.



3. Surjapuri & Bajjika

The Bihar government has decided to set up two new academies to promote local dialects - Surjapuri and Bajjika.

Surjapuri, a mix of Hindi, Maithili and Bangla, is spoken in the Seemanchal region comprising Purnia, Katihar, Kishanganj and Araria districts.

Bajjika, similar to Maithili, is the language of the people living in the Bajjikanchal region of Muzaffarpur, Vaishali, West Champaran and Sheohar.

The eight already existing language academies in Bihar are Bihar Hindi Granth Academy, Maithili Academy, Magahi Academy, Bangla Academy, Sanskrit Academy, Bhojpuri Academy, Angika Academy and South Indian Languages Organisation. While Maithili and Bhojpuri have made progress in fields of art, culture, and literature, Magahi, Angika, Bajjika and Surjapuri remain less-developed.



4. Dadasaheb Phalke Award

The Ministry of Information and Broadcasting announced that the Dadasaheb Phalke Award for 2020 will be presented to veteran actress Asha Parekh.

- It is India's highest award in the field of cinema presented annually at the National Film Awards ceremony by the Directorate of Film Festivals, an organization set up by the Ministry of Information and Broadcasting.
- The recipient is awarded for their "outstanding contribution to the development of Indian cinema" and is selected by a committee of eminent personalities from the Indian film industry.
- The award consists of a Swarna Kamal (Golden Lotus) medal, a shawl and a cash prize of ₹1,000,000. It was introduced in memory of Dadasaheb Phalke, known as the "Father of Indian Cinema" and was first presented in 1969.



5. Carl Gustaf M4

- Swedish defence major Saab (Saab: Swedish defence products company) announced plans to manufacture its Carl-Gustaf M4 weapon system in India.
- The Carl-Gustaf recoilless rifle is a man-portable, multi-role weapon system - neutralising armoured tanks, clearing obstacles or engaging enemies in buildings. This is the first time the company will be setting up a manufacturing facility for this outside Sweden.
- The Army has been using the iconic Carl-Gustaf since 1976 and currently operates the Mk2 and Mk3 versions. The M4 version is shorter and lighter.



6. Very Short Range Air Defence System (VSHORAD)

- The Defence Research and Development Organisation (DRDO) conducted two successful test flights of VSHORADS missiles.
- The missile is a Man Portable Air Defence System (MANPAD) designed and developed indigenously by DRDO's Research Centre Imarat (RCI), Hyderabad in collaboration with other DRDO facilities and various Indian industry partners. The missile incorporates many novel technologies including miniaturised Reaction Control System (RCS) and integrated avionics, which have been successfully tested. The missile has been designed to neutralise low altitude aerial threats at short ranges and is propelled by a dual thrust solid motor.



7. Credit Enhancement

SEBI released a new framework for credit rating agencies involving ratings of securities having explicit credit enhancement features.

The new rules are applicable from 1 January, 2023. It is aimed at enhancing transparency and the quality of the rating process. Under the rule, CRAs can assign the suffix 'CE' (Credit Enhancement) to the rating of instruments having explicit credit enhancement. Credit enhancement is a strategy for improving the credit risk profile of a business, usually to obtain better terms for repaying debt or to reduce the risks to investors of certain structured financial products. While assigning such credit ratings, CRAs will have to conduct independent due diligence.



8. Slush Fund

US Securities and Exchange Commission fines Oracle \$23 million for bribery in India, Turkey & UAE using slush funds.

A slush fund is a sum of money that is set aside as a reserve. It has not always been properly accounted for in terms of where the funds have come from or what they are used for due to which, the fund is sometimes misused to finance illicit or unethical activities, to hide transactions, or to acquire non-public information or other services.



9. Bharatskills Forum

Directorate General of Training (DGT) recently launched Bharatskills Forum.

- This facility will act as a digital warehouse for the skilling community. It will allow sharing of contents in various forms like handwritten trainers' or trainees' notes, PDFs, scanned copies, or recorded videos in any language.
- The Directorate General of Training (DGT) in the Ministry of Skill Development and Entrepreneurship (MSDE) is the apex organisation for development and coordination at national level for the programmes relating to vocational training. DGT in Oct 2019 had launched an online learning platform called the Bharatskills. It is a central digital repository for the trainees and trainers of the ITI ecosystem enabling anytime, anywhere learning outside the classrooms.



10. Global Innovation Index 2022

Global Innovation Index 2022 is released by World Intellectual Property Organisation. India's ranking improved from 46 (2021) to 40 (2022). India and Turkey (37th) enter the top 40 for the first time. Switzerland, the United States, Sweden, the United Kingdom and the Netherlands are the world's most-innovative economies.

About WIPO:

Established in 1967 by WIPO Convention, it is headquartered in Geneva, Switzerland. It is one of the 15 specialised agencies of the UN ECOSOC. It has 193 member states. The only non-members, among the countries recognised by the UN are the Federated States of Micronesia, Palau and South Sudan.



11. Vande Bharat Train 2.0

Recently, Prime Minister inaugurated the new Vande Bharat trainset.

- PM had also inaugurated the Vande Bharat when it was first launched in Delhi in 2019. This train is the third in the Vande Bharat series.

Major Upgrades:

- This train reaches a top speed of 160 km per hour in 129 seconds, around 16 seconds faster than its predecessor. It is 38 tonnes lighter than the last one. It also has a better riding index (lower the better) of 3.26 at 180 km per hour, from the earlier 3.87.

Safety features:

- The new train comes fitted with the automatic anticollision system Kavach, which the previous trains did not have. All the seats are recliner seats. Executive Coaches have the added feature of 180-degree rotating seats.



12. Matdata Junction

Election Commission is to launch Matdata Junction, a year-long voter awareness program on All India Radio.

- The weekly program covers all aspects of the Voter ecosystem and shall be broadcast every Friday on the All India Radio network. Each Program will be based on a particular Theme in the Electoral process. All 52 Themes are aimed at encouraging all eligible citizens and especially the young and first-time voters to vote and make an informed decision during the elections. Quiz, Experts, interviews, and songs produced by the SVEEP (Systematic Voters' Education and Electoral Participation) Team of the ECI shall be carried out in every episode. The program shall be produced in 23 languages - Assamese, Bengali, English, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili & Dogri.



13. Professor of Practice

The higher education regulator University Grants Commission (UGC) has issued new guidelines under which higher education institutes can create a new teaching position called Professor of Practice to hire experts from various sectors.

Key Highlights:

To be eligible for appointment, an individual will have to be a "distinguished expert" who has "made remarkable contributions in their professions", and has at least 15 years of service or experience. It is open to the institutions themselves to decide the sector from which they want to rope in professionals. A professor of practice can be anyone with a background in a diverse range of areas from technology, science, social sciences, media, literature, armed forces, law, fine arts, etc. However, the position is not open for those in the teaching profession - either serving or retired. No formal academic qualification is necessary in order to be considered for this position if a person has been an "exemplary" professional in their field of work. The maximum duration of service of Professor of Practice at a given institution should not exceed three years and is extendable by one year in exceptional cases and the total service should not exceed four years under any circumstances.

Current Affairs at a Glance

1. India participated in the 3rd meeting of G20 Sherpas in Indonesia.
2. The first indigenously developed LCH was inducted into the Indian Air Force by Defense Minister Rajnath Singh at Jodhpur, Rajasthan on October 3, 2022.
3. Adani Green commissions world's largest wind-solar plant with a capacity of 600 MW in Rajasthan.
4. Russian President Putin announced the merger of 4 regions of Ukraine. (Donetsk, Luhansk, Zaporizhzhya and Kherson.)
5. PM Narendra Modi laid the foundation stone of the world's first CNG terminal in Bhavnagar, Gujarat.
6. Sanjeev Kishor appointed as the new Director General of Ordnance (C&S).
7. Union Home Minister Amit Shah announced Scheduled Tribe status to the Pahari community in Jammu and Kashmir.
8. Atmanirbhar Gujarat scheme was announced by the Gujarat government to help the industries.
9. Former German Chancellor Angela Merkel received the 'Nansen' Refugee Award.
10. Telangana government started 'Aasra' pension for the poor.
11. Madhav Hada to be conferred with 32nd Bihari Award.
12. The Appointments Committee of the Cabinet has approved the appointment of Ajay Bhadoo as the Deputy Election Commissioner of India.
13. Rohan Bopanna and Mattvey Middlekup won the men's doubles title at the ATP 250 Tel Aviv Watergen Open, Tennis.
14. Arunachal Pradesh Governor BD Mishra was given additional charge of Meghalaya.
15. About 62% of rural households in India have fully functional tap water connections.
16. In Latvia, the western centrist party of Prime Minister Krysjanis Karins won the election.
17. USA defeated China to win the FIBA Women's Basketball World Cup 2022.
18. Sujoy Lal Thosen took over as the 37th Director General of CRPF.
19. A landmark MoU was signed to launch India's RuPay Debit Card in Oman.
20. Researchers have discovered new evidence for the existence of liquid water under the southern polar ice cap of Mars.
21. The World Bank reduced India's GDP growth forecast to 6.5 percent.
22. Pankaj Tripathi was declared a 'National Icon' by the Election Commission of India.
23. Rohit Sharma has become the first Indian cricketer to complete 400 matches in T20.
24. India's current account deficit widened to 2.8% in the first quarter of FY2023.
25. Justice DY Chandrachud to be the next Chief Justice of India.
26. Civil Aviation Minister Jyotiraditya M Scindia inaugurated the 4th Heli-India Summit 2022 in Srinagar.
27. FIFA in association with AIFF launched 'Football for Schools' campaign in India.



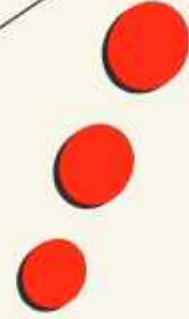
Brain Booster



World Mental Health Day is observed every year on October 10 across the world to raise awareness and draw attention towards mental health issues.

- ◆ 2022: Make mental health and well-being for all a global priority
- ◆ 2021: Mental health care for all: Let's make it a reality
- ◆ 2020: Move for mental health: Let's invest.

Why in Broadcast:



World Mental Health Day

History

- ◆ The first World Mental Health Day was observed on October 10, 1992, as an annual activity by the World Federation for Mental Health (WFMH).
- ◆ In 1994, they started assigning particular themes for the annual event.
- ◆ First theme: "Improving the Quality of Mental Health Services throughout the World".

Theme:

According to WHO data published in 2022:

- ◆ At least 1 in 7 world's adolescents suffer from mental health disorders.
- ◆ Depression is the most common mental health disorder.
- ◆ More than 700,000 people die by suicide every year.
- ◆ Globally, suicide accounts for 1 in 100 deaths.
- ◆ People with severe mental disorders are likely to die at least 10 to 20 years earlier than the general population.
- ◆ WHO data shows that the Covid-19 pandemic has caused a 25% increase in cases of anxiety and depression.

Status of Mental Health across the world

Promoting and Protecting Human Rights

- ◆ Ratify the UN Convention on the Rights of Persons with Disabilities (CRPD).
- ◆ Change attitudes and raise awareness.
- ◆ Improve human rights in mental health facilities.
- ◆ Empower people with mental health conditions and their families.
- ◆ Replace psychiatric institutions with community care.
- ◆ Increase investment in mental health.

Stress Management:

- Some of the ways to improve both physical and mental health:
- ◆ Exercise regularly
 - ◆ Eat healthy, regular meals and stay hydrated
 - ◆ Prioritising sleep
 - ◆ Try relaxing activities
 - ◆ Setting goals and priorities
 - ◆ Stay connected
 - ◆ Practising gratitude

Overcoming Barriers to Receiving Mental Health Care

- ◆ Provision of clear information on mental health care entitlements and how to receive services
- ◆ Outreach to at-risk groups
- ◆ Facilitation of affordable and non-discriminatory access to care
- ◆ Facilitation of communication
- ◆ Providing person-centred care that is respectful of cultural differences
- ◆ Facilitating the engagement of multiple sectors and systems.

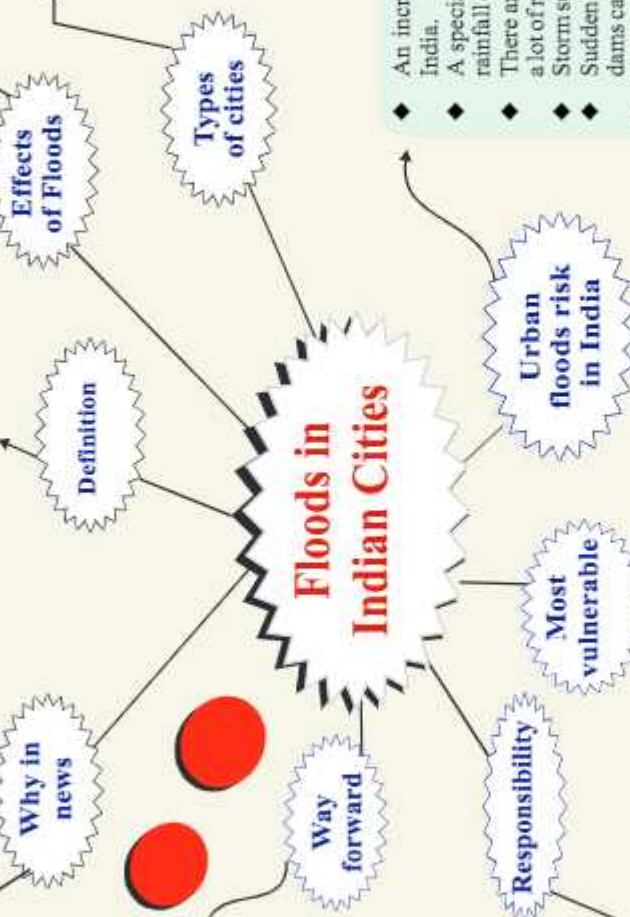


Two days of torrential rain had flooded Bengaluru, the southern city known as India's Silicon Valley, forcing tech workers to use boats and hitch rides on tractors to get to the office in the Monsoon of 2022.

- ◆ Focus on increasing the resilience of communities and adaptive capacity of infrastructure.
- ◆ Water sensitive urban design and planning techniques in the context of implementation are of utmost importance.
- ◆ Vulnerability analysis and risk assessment should form part and parcel of city master plans.
- ◆ Strong land use controls, EIAs and enforcement will remain critical to ensure that fragile wetlands and flood plains are not concretized.

- ◆ Our cities have been built with little to no regard to the natural topography and severely lacks holistic action.
- ◆ Provisions like rain water harvesting, sustainable urban drainage etc. in regulatory mechanism like Environmental Impact Assessment (EIA) or building bylaws of almost every state, adoption at user end as well as enforcement agencies remains weak.
- ◆ Encroachment on river beds, flow channels, silting of water bodies adds to the severity of floods.

Floods can be defined as "the submergence of usually dry area where large amount of water that comes from sudden excessive rainfall, an overflowing river or lake, melting snow or and an exceptionally high tide"



- ◆ **Primary:-** Casualties & Property loss
- ◆ **Secondary :-** Contamination of water, Loss of entire harvest, Spread of waterborne diseases
- ◆ **Tertiary :-** Economic hardship. Loss of tourism, Food shortage, Rebuilding cost, Price increase

Coastal cities :- Flood in coastal cities are compounded by high tides depending on the time of the event.

Inland cities :- Immediate water discharge and prevention of water logging is a challenge in inland cities.

Hill towns :- Challenged with very high runoff, short flow duration and high scouring on account of slope, floods may also trigger mud flow and landslide.

Cities along rivers :- Challenged with shifting water course in the middle and lower Ganga plains or unexpected high water discharge in-course

- ◆ An increasing trend of urban flood disasters in India.
- ◆ A special feature in India is that we have heavy rainfall during monsoons.
- ◆ There are other weather systems also that bring in a lot of rain.
- ◆ Storm surges can also affect coastal cities/towns.
- ◆ Sudden release or failure to release water from dams can also have severe impact.
- ◆ The urban heat Island effect has resulted in an increase in rainfall over urban areas.
- ◆ Global climate change is resulting in changed weather patterns and increased episodes of high-intensity rainfall events occurring in shorter period of periods of time.
- ◆ The threat of sea level rise is also looming large, threatening all the coastal cities.

- ◆ Vulnerability of the poor is profound and lingering in our cities
- ◆ Flood water circulate untreated solid waste and faecal matter around squatter settlements, which leads to outbreak of malaria, dengue, diarrhoea etc. for a much longer time than the season of rainfall



At the fourth BIMSTEC summit, the Prime Minister of India announced the opening of the Centre for Bay of Bengal Studies (CBS) at Nalanda University.

Why in Broadcast:

Importance of Centre for Bay of Bengal Studies (CBS)

About BIMSTEC

Centre for Bay of Bengal Studies (CBS)

About Bay of Bengal

Objectives of BIMSTEC

Importance of Andaman & Nicobar Command:

- ◆ Control over vital global shipping routes
- ◆ Control over critical shipping chokepoints
- ◆ QUAD force multiplier
- ◆ Historic and contemporary geostrategic soft and hard power
- ◆ The area in and around ANC
- ◆ Port-development led Encirclement
- ◆ Protection of exclusive economic zone

The CBS will offer collaborations in areas such as

- ◆ Geo-economics and geopolitics
- ◆ Trade and connectivity
- ◆ Ecology and maritime security
- ◆ Foster maritime laws and cultural heritage.
- ◆ Blue economy to generate opportunities for the bay region.

This will strengthen India's overall framework for maritime engagement, which aims to advance sustainable economic growth for all by fostering closer nautical ties.

- ◆ It is a regional multilateral organization whose members lie in the littoral and adjacent areas of the Bay of Bengal constituting a contiguous regional unity.
- ◆ The organization was founded in 1997 through the Bangkok Declaration.
- ◆ Initially, it was formed with four member states with the acronym 'BIST-EC' (Bangladesh, India, Sri-Lanka and Thailand Economic Cooperation).
- ◆ Later Myanmar joined and in 2004 it became BIMSTEC after Bhutan and Nepal joined.
- ◆ There are 7 member countries
 - ◆ Bangladesh
 - ◆ Nepal
 - ◆ Thailand
 - ◆ Bhutan
 - ◆ Sri Lanka
 - ◆ India
 - ◆ Myanmar

- ◆ It mainly aims to create an enabling environment for
 - Rapid economic development
 - Accelerate social progress
 - Promote collaboration on matters of common interest in the region.

◆ It is the world's largest bay which is part of the Northeastern Indian Ocean.

◆ Its formation is attributed to plate tectonics

◆ The Bay of Bengal (BoB) is home to diverse biodiversity and many rivers such as Ganga, Meghna, and Brahmaputra etc. flow into the bay.

◆ Many protected areas are situated across the coast of Bay of Bengal

➢ Sundarbans National Park (world's largest mangrove forest)

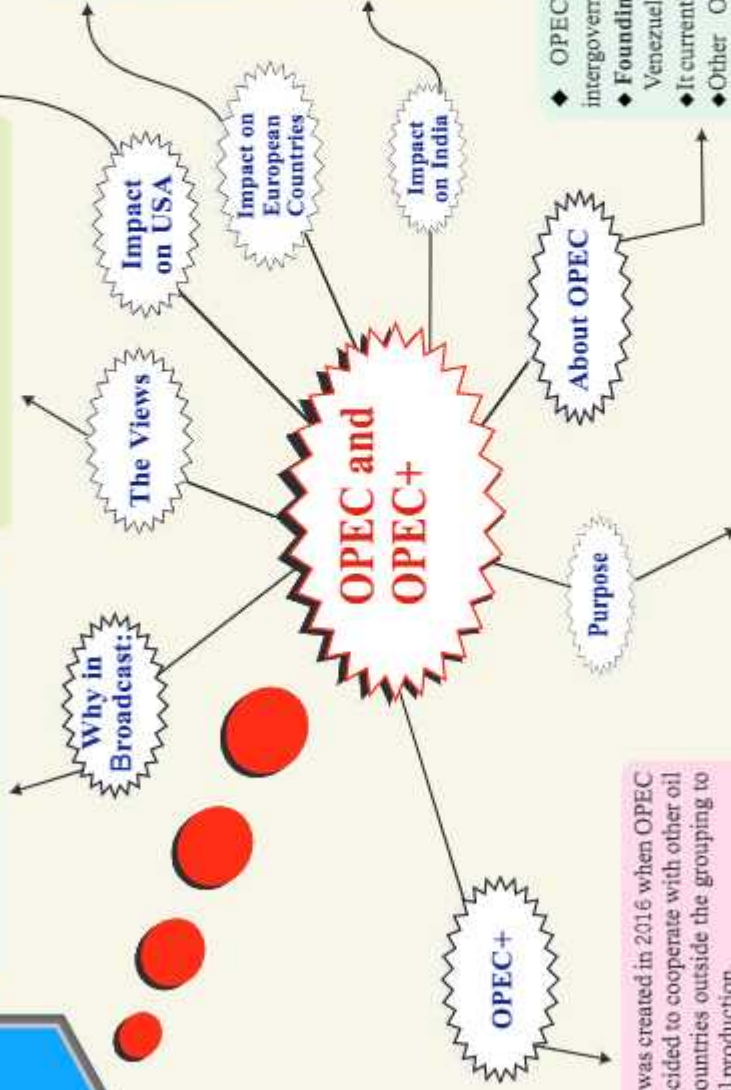
➢ Gahirmatha Marine Sanctuary (famous for mass hatching of Olive Ridley Turtles)

➢ Bhitarkanika National Park



Recently, the Organization of the Petroleum Exporting Countries (OPEC) and its allies, known as OPEC+, decided to cut oil production by 2 million barrels per day (bpd).

- ◆ This is the biggest reduction since the start of the Covid 19 pandemic.
- ◆ OPEC+ members are concerned that a faltering global economy will reduce oil demand.
- ◆ The deduction is being seen as a way to protect profits.



- ◆ OPEC Plus was created in 2016 when OPEC countries decided to cooperate with other oil producing countries outside the grouping to cut global oil production.
- ◆ Non-OPEC countries which export crude oil along with 13 OPEC countries are called OPEC plus countries.
- ◆ OPEC Plus countries include: Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan.

- ◆ OPEC's cut in oil production is likely to have a negative impact on US inflation as the US has been repeatedly asking the OPEC organization to increase oil production over the past few years.

- ◆ Oil production cuts will give Russia a direct advantage over other European countries as Russia is a key oil exporting country.
- ◆ After the Russia-Ukraine War, European countries have attempted to control the prices of Russian oil exports.

- ◆ India imports about 85 % of crude oil, so an increase in oil prices can have the following effects on India's economic condition
- ◆ India's oil import bill may increase.
- ◆ Inflation may increase; current account deficit and fiscal deficit may increase.
- ◆ Rupee may weaken against dollar.

- ◆ OPEC, established in 1960, is a permanent, intergovernmental organization.
- ◆ Founding members: Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.
- ◆ It currently has 13 member countries.
- ◆ Other OPEC members are: UAE, Algeria, Angola, Equatorial Guinea, Gabon, Libya, Nigeria and Republic of the Congo.
- ◆ Headquarters - Vienna (Austria).
- ◆ 13 member countries account for an estimated 44% of global oil production and 81.5% of the world's total oil reserves.
- ◆ OPEC membership is open to any country that is a major exporter of oil and that shares the organization's ideals.

- ◆ Coordinating and integrating the petroleum policies of its member countries.
- ◆ To ensure stabilization of oil markets to ensure efficient, economic and regular supply of petroleum to the consumers.
- ◆ Providing a stable income to producers and a fair return on capital for those investing in the petroleum industry.

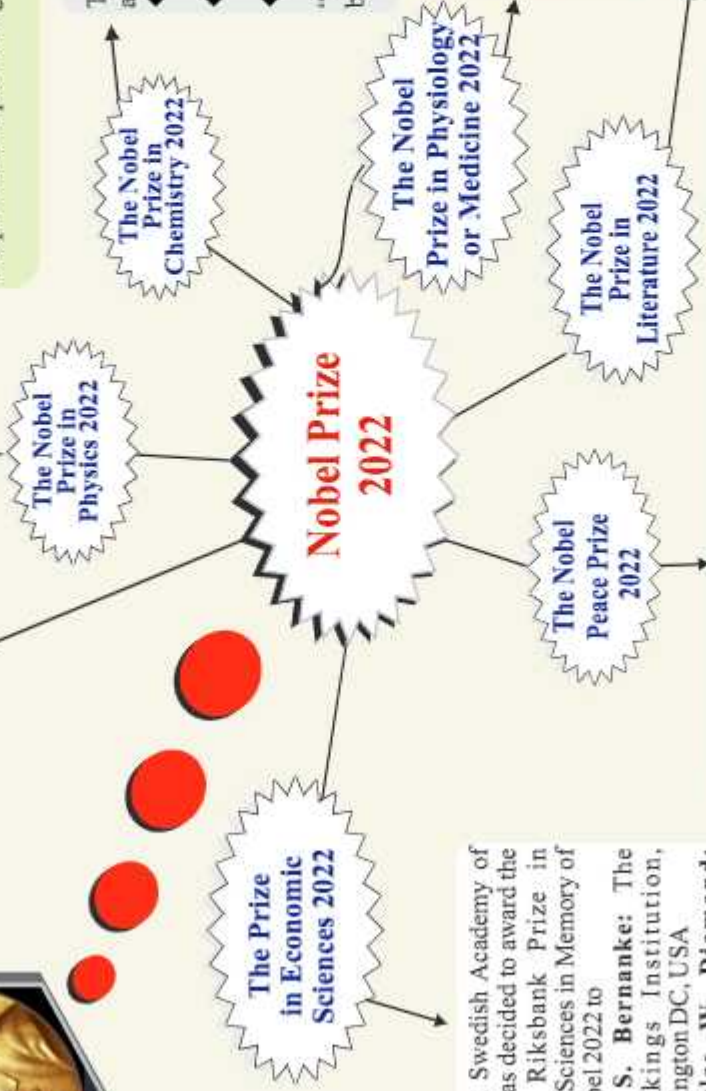


The Nobel Peace Prize has been awarded 103 times to 140 Nobel Prize laureates between 1901 and 2022, 110 individuals and 30 organizations.

The Royal Swedish Academy of Sciences has awarded the Nobel Prize in Physics 2022 to

- ◆ **Alain Aspect:** Institut d'Optique Graduate School – Université Paris-Saclay and École Polytechnique, Palaiseau, France.
- ◆ **John F. Clauser:** J.F. Clauser & Assoc., Walnut Creek, CA, USA
- ◆ **Anton Zeilinger:** University of Vienna, Austria.

“for experiments with entangled photons, establishing the violation of Bell inequalities and pioneering quantum information science”



The Royal Swedish Academy of Sciences has awarded the Nobel Prize in Chemistry 2022 to

- ◆ **Carolyn R. Bertozzi:** Stanford University, CA, USA.
- ◆ **Morten Meldal:** University of Copenhagen, Denmark
- ◆ **K. Barry Sharpless:** Scripps Research, La Jolla, CA, USA

“for the development of click chemistry and bioorthogonal chemistry”

The Nobel Assembly at the Karolinska Institute has decided to award the 2022 Nobel Prize in Physiology or Medicine to

Svante Pääbo

“for his discoveries concerning the genomes of extinct hominins and human evolution”

The Nobel Prize in Literature for 2022 is awarded to

The French author Annie Ernaux

“for the courage and clinical acuity with which she uncovers the roots, estrangements and collective restraints of personal memory”.

The Royal Swedish Academy of Sciences has decided to award the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2022 to

- ◆ **Ben S. Bernanke:** The Brookings Institution, Washington DC, USA
- ◆ **Douglas W. Diamond:** University of Chicago, IL, USA
- ◆ **Philip H. Dybvig:** Washington University in St. Louis, MO, USA

“for research on banks and financial crises”

The 2022 Peace Prize is awarded to

- ◆ Human rights advocate Ales Bialiatski from Belarus.
- ◆ The Russian human rights organisation Memorial
- ◆ The Ukrainian human rights organisation Center for Civil Liberties.

“The Peace Prize laureates represent civil society in their home countries. They have for many years promoted the right to criticise power and protect the fundamental rights of citizens. They have made an outstanding effort to document war crimes, human right abuses and the abuse of power.”



International Girl Child day was observed on 11th October, 2022.

- ◆ United Nations General Assembly, adopted a resolution on 19 December, 2011, to declare October 11 as International Day of the Girl Child.
- ◆ Theme for 2022: 'Our time is now—our rights, our future'

Why in Broadcast?

What's the need?

About

International Girl Child day

Way forward

Initiatives by India

Condition in India

- ◆ Today 1.1 billion girls are ready to take on the future, and to aid them further in this it is essential to empower them.
- ◆ Empowerment is not only their basic right but has several positive implications in various dimensions of future.

There are several initiatives taken in this regard, that includes:

Sukanya Samriddhi Yojana:

1. Launched in 2015

2. Encourages parents to invest and build funds for education and future marriage of girl child.

Balika Samriddhi Yojana:

1. A central government scheme, that aids girl child belonging to financially vulnerable society
2. It benefits the girl child belonging to BPL (below poverty line) family.

Beti Bachao Beti Padhao:

1. A very popular scheme endorsed by several schools and universities, promotes the safety of a girl child before and after her birth.
2. It envisages giving a girl a safe atmosphere to thrive and survive through various measures that includes access to better quality education.

- ◆ Around one in every four girls, comprising age group 15-19, are deprived of education, employment or training.
- ◆ SDG goals envisage a sustainable growth for everyone.
- ◆ The day brings attention to the challenges girls face, and promotes their empowerment.
- ◆ As per Sustainable development Report 2021, around 10 million girls will put at risk of early marriage post pandemic due to economic shocks, school closures etc.
- ◆ According to report, girls are primarily victims of sexual exploitation (72% of such cases) while boys are mainly subjected to forced labour.
- ◆ In least developed nations, almost half of the primary schools lack single-sex toilets while more than two thirds are devoid of electricity.

- ◆ Accidental Death By Suicides in India Report 2021 states that in 2021 around 1.49 lakhs cases were recorded against children, which is more than pre-pandemic level.
- ◆ West Bengal and Odisha are among top 5 states that accounted for almost 47% of the total crimes committed against children in India.
- ◆ As per census 2011, the child sex ratio is 940 females to 1000 males while in some states the situation is even worse.
- ◆ Further, the nation has highest rate of female foeticide in the world and highest drop out rates from school when they hit puberty.
- ◆ National Family Health Survey recorded almost 23% cases of child marriage in 2019-2020, a number though less compared to 27% in 2015-16, yet very alarming.
- ◆ Girl child is often deprived of their basic education and often encouraged to manage household.



October 24 is observed as United Nations day.

- ◆ UN Day commemorates the date on which the UN Charter was ratified and the establishment of the Organization in 1945.
- ◆ The United Nations will celebrate its 77th anniversary in 2022.

Context

Current challenges before UN

- ◆ The issues arising out of Russia Ukraine war, as poised as major challenge before UN.
- ◆ Recently, its first humanitarian ship named 'brave commander' delivered 23,000 tonnes of wheat to Ukraine.
- ◆ The economic issues arising out of war, impacting the least developing countries is another major challenge.
- ◆ A wide gap between the current situation and Sustainable Development Goals is the issue that requires more innovative action.
- ◆ Post pandemic challenges, requires attention.

About the day

History

- ◆ After World War II, the realisation for how crucial it was to prevent future wars between nations was felt.
- ◆ Consequently, in an effort to stop similar destructive wars in the future, the United Nations was established.
- ◆ The League of Nations, founded in 1919 as part of the Treaty of Versailles "to promote international cooperation and to achieve peace and security," predated the UN.
- ◆ American President Franklin D. Roosevelt came up with the term "United Nations."
- ◆ The UN Charter was signed by 50 nations at the United Nations Conference on International Organization, held in San Francisco, California.
- ◆ The United Nations was eventually established as an intergovernmental body in accordance with the UN Charter of 1945.

United Nations Day

About United Nations

- ◆ It is an organisation comprising 193 member states, and guided by its founding charter's principles and implemented by its various organs and agencies.
- ◆ Its activities include upholding international law, preserving world peace and security, and defending human rights while also providing humanitarian relief and advancing sustainable development.
- ◆ The main organs of the UN were established in the same year of 1945 and they comprise
 1. General Assembly,
 2. Security Council,
 3. Economic and Social Council,
 4. Trusteeship Council
 5. International Court of Justice,
 6. UN Secretariat.

India and UN

- ◆ India was among the select members of the UN that signed the Declaration by United Nations at Washington on 1 January 1942.
- ◆ India also participated in the historic UN Conference of International Organization at San Francisco from 25 April to 26 June 1945.
- ◆ India, as a founding member of the UN, firmly supports the organization's goals and tenets of the organisation
- ◆ India has significantly contributed to both the achievement of the Charter's objectives and the development of the UN's specialised programmes and agencies.

MCQs based on Preliminary Exam

- Consider the following statements regarding Revolutionary Movement member Ajoy Ghosh:
 - Ajoy Ghosh was one of the members of Hindustan Republican Association.
 - He was involved in different robberies done by H.R.A.
 - Ajoy Ghosh was one of the founding members of Hindustan Socialist Republican Army.
 Which of the above statement/s is/are correct?
 - 1 and 2 only
 - 2 and 3 only
 - 3 only
 - All of the above
- Consider the following statements:
 - 1930's economic depression impacted Indian agriculture by reducing the price rapidly for agricultural products.
 - 1930's economic depression impacted Indian exports in adverse manner.
 - 1930's economic depression did not impact colonial economy very hard.
 Which of the above statement/s is/are incorrect?
 - 1 and 2 only
 - 3 only
 - 1 and 3 only
 - All of the above
- Regarding Shatpatra Series which of the following statement/s is/are correct?
 - It was mainly related to social reforms.
 - It talked in the favour of indigenous industries
 Select the correct answer from the code given below:
 - 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2
- Consider the following statements:
 - Lord Dufferin prepared a report which helped in formulation of Indian Councils Act, 1892.
 - It aimed to include those people in the Council who had the intelligence and impressive talent to influence people at large scale.
 Which of the above statement/s is/are correct?
 - 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2
- Consider the following statements:
 - Major General Havelock, who recaptured Kanpur during the Revolt of 1857, died in Lucknow.
 - Sir Henry Lawrence, who was the director of the company, died in Lucknow during the Revolt of 1857.
 Which of the above statement/s is/are correct?
 - 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2
- Which of the following statements is not true?
 - Main work of Public Account Committee is to examine the report of Comptroller and Auditor General.
 - Public Account Committee is mainly constituted with the members of Lok Sabha only.
 - Member of Opposition can be appointed as the president of Public Account Committee.
 - Members of Public Account Committee can be reelected for the second term.
- Consider the following statements:
 - It is essential for the State government to inform the Central government within 48 hours, if it suspends any IAS officer.
 - Article 311 provides protection to both the All India Services and the Central Military Services during their tenure.
 Which of the above statement/s is/are correct?
 - 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2
- Which of the following taxes are exclusively related to the States of Indian Union?
 - Tax on land & Buildings
 - Tax on Mineral Rights
 - Tax on entry of Goods in Local areas
 - Tax on income other than agricultural income.
 Select the correct answer from the code given below:
 - 1, 2 and 3 only
 - 2 and 3 only
 - 1 and 4 only
 - All of the above
- Consider the following statements:
 - Islington Commission was related to the inclusion of Indians in every branch of administration.
 - Lee Commission was related to the judicial

reforms.

Which of the above statement/s is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

10. Judicial control over Administration aims to:

- Control over policies and expenditure of government.
- To ensure the validity of work of officials, so that the rights of citizens could be retained.
- To bring all the officials under the ambit of Public Controlling.

Which of the above statement/s is/are correct?

- (a) 1 only (b) 2 only
(c) 2 and 3 only (d) 3 only

11. Correctly match the following pairs:

List-I	List-II
A. Consolidated Fund of India	1. Article 110
B. Money Bill	2. Article 267
C. Annual Financial Statement	3. Article 266
D. Contingency Fund of India	4. Article 265
5.	Article 112

Select the correct answer from the code given below:

- | | | | | |
|-----|---|---|---|---|
| | A | B | C | D |
| (a) | 5 | 1 | 4 | 2 |
| (b) | 3 | 2 | 5 | 1 |
| (c) | 5 | 2 | 4 | 1 |
| (d) | 3 | 1 | 5 | 2 |

12. Consider the following statements:

- In India Total Fertility Ratio (TFR) of Urban areas is higher than TFR of Rural areas.
- Maternal Mortality Ratio(MMR) is calculated on the basis of per thousand live births, but Infant Mortality Ratio (IMR) is calculated on the per 100 thousand live births.

Which of the above statement/s is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

13. Consider the following statements regarding Sangeet Natak Academy:

- It gives financial assistance for theatre

activities.

- It gives financial assistance to teachers and grants scholarships to students.
- Surveying and documentation of various theatrical, music and dance forms is done by Lalit Kala Akademi.

Which of the above statement/s is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

14. Consider the following statements regarding Raja Ram Mohan Roy Library Foundation:

- It was established on bicentenary birth celebration of Raja Ram Mohan Roy.
- It is located in Kolkata.
- Its main objective is to promote and support the public library movement in the country.

Which of the above statement/s is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) All of the above

15. Consider the following statements:

- Maithili is an Indo-Aryan language.
- It is spoken mainly by North-Eastern people of Bihar and Nepal.
- Siddhacharya developed proto-maithili during 1st-2nd AD.

Which of the above statement/s is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

16. Consider the following statements regarding Sikhism:

- Guru Nanak used the Hindu mystic syllable 'OM' as the symbol of God.
- Sikhism accepts the general Hindu tenets of the 'Universe' and the 'doctrine of Samsara'.

Which of the above statement/s is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

17. In the case of nuclear disaster which of the following option/s for cooling the nuclear reactors can be adopted?

- Pumping of water to the reactors
- Use of boric acid
- Taking out the fuel rods and keeping them in a cooling pond.

Select the correct answer from the code given below:

- (a) 1, 2 and 3 (b) 1 and 2 only
(c) 2 and 3 only (d) 3 only

18. Consider the following statements about the Food Safety and Standards Authority of India (FSSAI):

1. It is a statutory body
2. Union Ministry of Health & Family Welfare is the administrative ministry for the implementation of FSSAI.
3. It provides scientific and technical advices to central and state governments on food safety.

Which of the above statement/s is/are correct?

- (a) 1 and 2 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2 and 3

19. Consider the following statements regarding the Geosynchronous Satellite Launch Vehicle Mark-III (GSLVMK-III):

1. It was developed by the Indian Space Research Organisation in collaboration with the European Space Agency.
2. It is designed to be a three stage launch vehicle and uses indigenous cryogenic engine in its third stage.
3. GSLVMK-III provides the capability to launch '4T class communication satellites' into the orbit.

Which of the above statement/s is/are correct?

- (a) 1 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2 and 3

20. What is Operating Island in a Nuclear Power Plant (NPP)?

- (a) An island where most important scientists are based.
- (b) An area where nuclear reactors are situated.
- (c) An island in the sea/lake from where water for reactors is drawn.
- (d) An area where all plants are placed.

21. Consider the following statements:

1. Xenobiotics are foreign substances, which are naturally occurred outside the body, which have an action when introduced within the body causing impact on hormonal/metabolic balance.

2. Xenobiotics are considered as a large problem in sewage treatment plants.

3. DDT is a type of Xenobiotics compound. Which of the above statement/s is/are incorrect?

- (a) 1 and 3 only (b) 2 and 3 only
(c) 1 and 2 only (d) None of the above

22. Consider the following statements with respect to Bio-Leaching:

1. It is used to successfully extract metals from a variety of ores.
2. It is an energy saving alternative.
3. It is not very environment friendly.

Which of the above statement/s is/are incorrect?

- (a) 1 and 2 only (b) 1, 2 and 3
(c) 2 and 3 only (d) 3 only

23. Consider the following statements regarding the Department of Scientific and Industrial Research (DSIR):

1. It is a part of the Ministry of Commerce and Industry.
2. It has a mandate to carry out the activities relating to indigenous technology promotion, development, utilization and transfer.
3. It oversees the Council of Scientific and Industrial Research (CSIR), India's largest research and development organization.

Which of the above statement/s is/are correct?

- (a) 2 only (b) 1 and 3 only
(c) 2 and 3 only (d) None of the above

24. Consider the following statements regarding the Science and Engineering Research Board:

1. It is an autonomous body under the Ministry of Science and Technology, Government of India.
2. It is a statutory body, established by an Act of the Parliament in 2009.
3. It is chaired by the Union Minister for Science and Technology.

Which of the above statement/s is/are correct?

- (a) 1 and 2 only (b) 1 and 3 only
(c) 2 and 3 only (d) None of the above

25. Consider the following statements about 'Namami Gange' Project:

1. It is a flagship scheme
2. It works in a 'top-down approach'.

3. It also includes Panchayati Raj Institutions as an executive body.
4. It is executed by both agencies 'National Mission for Clean Ganga' and 'State Program Management Group'.

Which of the above statement/s is/are correct?

- (a) 1, 3 and 4 only
- (b) 1, 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

26. The land of India displays great physical variation. Geologically, the Peninsular Plateau constitutes the ancient landmasses on the earth's surface. Consider the following statements about Peninsular Plateau:

1. Peninsular Plateau is composed of sedimentary rocks with gently rising hills and wide valleys.
2. Earthquakes are frequent in Peninsular Plateau.
3. Peninsular Plateau's slow and steady movement towards north and north-east, has been responsible for the formation of the Himalayas and the Northern Plains in place of Tethys Sea.

Which of the above statement/s is/are correct?

- (a) 1, 2 and 3
- (b) 2 only
- (c) 1 only
- (d) 3 only

27. What do you mean by Geothermal Gradient?

- (a) Gradual decrease in temperature with increasing depth in the Crust
- (b) Gradual increase in temperature with increasing depth in the Crust
- (c) Temperature remains constant with increasing depth
- (d) It is the normal temperature of the Crust

28. Which one of the following facts was not considered while discussing the concept of Sea Floor Spreading?

- (a) Volcanic activities along the mid-oceanic ridges.
- (b) Observation of strips of normal and reserve magnetic fields in the rocks of ocean floor.
- (c) Distribution of fossils in different continents.
- (d) Age of rocks from the ocean floor.

29. Consider the following statements:

1. Amount of water vapour decreases from equator to the poles.
2. Amount of water vapour increases from equator to the poles.
3. Equatorial regions have highest concentration of dust particles.

Which of the above statement/s is/are correct?

- (a) 1 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

30. Match List-I with List-II and select the correct answer from the codes given below:

List-I	List-II
A. The species which are on the verge of extinction	1. Endemic species
B. The species only found in some particular areas	2. Extinct species
C. Species with small population	3. Vulnerable species
D. The species whose population has declined to level considerably low	4. Endangered species
	5. Rare species

Code:

- | | A | B | C | D |
|-----|---|---|---|---|
| (a) | 4 | 1 | 5 | 3 |
| (b) | 2 | 3 | 4 | 5 |
| (c) | 2 | 4 | 2 | 5 |
| (d) | 4 | 1 | 5 | 3 |

31. According to the Part 9A of the Indian Constitution who among the following person/s can be provided with representation in Municipality?

1. Members of the Lok Sabha, representing constituencies that comprise wholly or partly the municipal area.
2. Persons having special knowledge or experience in municipal administration.
3. Members of the Rajya Sabha, registered as electors within the municipal area.

Which of the statement/s given above is/ are correct?

- (a) 1 and 2 only
- (b) 1 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

32. Which of the following are the basic tenets of Mahatma Gandhi's concept of Satyagraha?

1. No ill feeling for the wrongdoer.
2. Conformity of action to thought.
3. Violence preferable to cowardice.

Which of the statements given above are correct?

- (a) 1 and 2 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2 and 3

33. Which of the following is/are limitation/s on the powers of the Parliament in India?

1. Written constitution.
2. Federal system.
3. Fundamental rights.

Select the correct answer from the code given below:

- (a) 1 only (b) 1 and 2 only
(c) 2 and 3 only (d) 1, 2 and 3

34. Which of the following committee/s is/are related to Fundamental Duties?

1. Justice Verma Committee.
2. Swaran Singh Committee
3. Sarkaria Commission

Select the correct answer from the code given below:

- (a) 1 and 3 only (b) 1 and 2 only
(c) 2 only (d) 1, 2 and 3

35. Which of the following statement/s is/are correct with reference to Doctrine of Lapse Policy?

1. Under this, all Indian princely states had been annexed in the absence of a natural heir.
2. Awadh was the first princely state to be annexed on the grounds of absence of natural heir.
3. It denied the adopted son the right to succession to personal property of the Chieftain.

Select the correct answer from the code given below:

- (a) 1 only (b) 2 and 3 only
(c) 1 and 2 only (d) None of the above

36. With reference to the life of Raja Ram Mohan Roy which among the following events happened earliest?

- (a) Establishment of the Calcutta Unitarian committee.
(b) Foundation of Vedanta College in Calcutta.

- (c) Foundation of Brahmo Samaj.
(d) Starting of the newspaper Sambad Kaumudi.

37. With Reference to the Comptroller and Auditor General of India consider the following statements:

1. He is the head of the Indian audit and accounts department.
2. He holds office for a period of six years or up to the age of 65 years, whichever is earlier.
3. He can be removed by the President on the same grounds and in the same manner as a judge of the Supreme Court.

Which of the statement/s given above is/are correct?

- (a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

38. Consider the following statements in the context of Rowlatt Act:

1. It authorized government to imprison any person without trial in the court of law.
2. Satyagraha sabha was formed by Gandhi to launch Rowlatt satyagraha.
3. Rabindranath Tagore renounced the knighthood title in protest.

Which of the statement/s given above is/are correct?

- (a) 1 and 2 only (b) 1 only
(c) 1 and 3 only (d) 2 and 3 only

39. Consider the following statements with reference to Contempt of Court:

1. The Supreme Court and High Court derive their contempt powers from the constitution.
2. The executive has the power to make procedure in relation to investigation and punishment for contempt.

Which of the statement/s given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

40. Which of the following were the major limitations of the Swadeshi Movement?

1. Lack of support from Muslim masses.
2. Surat split of 1907 between moderates and extremists.

3. Retirement of Aurobindo Ghosh and Bipin Chandra Pal from freedom struggle.

Select the correct answer from the code given below:

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

41. With reference to Tej Bahadur Sapru committee report, 1945 consider the following statements:

1. The committee was set up to resolve the issues regarding the minorities.
2. The report rejected the Muslim League's demand for the Pakistan.
3. The report accepted the demand for separate electorates for Muslims.

Which of the statements given above are correct?

- (a) 2 and 3 only (b) 1 and 2 only
(c) 1 and 3 only (d) 1, 2 and 3

42. Which was were the likely factor/s which led Gandhiji to sign the pact with viceroy Irwin?

1. Incarceration of leading Congress leaders.
2. Dislocation of Trade and Industry due to frequent hartals.
3. Ruthless seizure of property by the government.

Which of the statement/s given above is/are correct?

- (a) 1 and 2 only (b) 3 only
(c) 1 and 3 only (d) 1, 2 and 3

43. Consider the following statements with respect to the Subtropical High Pressure Belt:

1. Subtropical high pressure belt is caused due to the rotation of the earth and sinking and settling down of winds.
2. Subtropical high pressure belt is characterized by cyclonic conditions.
3. The pressure belts occupy their normal ideal position at the time of the vernal equinox and autumnal equinox when the sun is vertical at the equator.

Which of the statements given above are correct?

- (a) 2 and 3 only (b) 1 and 3 only
(c) 1 and 2 only (d) 1, 2 and 3

44. Which of the following factors affect and control Air Motion?

1. Pressure gradient
2. Rotation of the earth

3. Frictional force
4. Centripetal acceleration

Select the correct answer from the code given below:

- (a) 1, 2, 3 and 4 (b) 1, 2 and 4
(c) 3 and 4 (d) 1 and 2

45. The river originates from a place near Mhow and flows through Rajasthan and joins Yamuna. The dams Gandhi Sagar, Rana Pratap Sagar, Jawahar Sagar are built on it.

Which river is being described in the above paragraph?

- (a) Banas (b) Ken
(c) Chambal (d) Betwa

46. Arrange the following passes in the West to East direction:

1. Khyber
2. Shipkila
3. Zoji la
4. Nathu la
5. Bomdila

Select the correct answer using the code given below:

- (a) 1-2-3-5-4 (b) 1-3-2-4-5
(c) 3-1-2-4-5 (d) 3-2-1-4-5

47. Consider the following statements:

1. The Stratosphere is devoid of major weather phenomena.
2. Stratosphere is considered ideal for flying aircrafts because the air blows horizontally here.
3. The Ozone layer is mainly found in the upper parts of the Stratosphere.

Which of the statements given above are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

48. Why do Landslides and debris Avalanches occur frequently in the Nilgiris?

1. It is a tectonically active region.
2. The slopes are steep.
3. Nilgiris are mostly composed of sedimentary and semi consolidated deposits.
4. Mechanical weathering of rocks is high.

Select the correct answer from the code given below:

- (a) 1 and 2 only (b) 2 and 4 only
 (c) 3 only (d) 1, 3 and 4 only

49. Consider the following pairs:

1. Laurentian : Canada
 2. Anatolia : Mexico
 3. Kimberly : Australia

Which of the above pair/s is/are correctly matched?

- (a) 1 only (b) 1 and 3 only
 (c) 1, 2 and 3 (d) 2 and 3 only

50. Which among the following element/s is/are present only in plant cells?

1. Plastids
 2. Vacuoles
 3. Mitochondria

Select the correct answer from the code given below:

- (a) 1 and 2 only (b) 1 only
 (c) 2 and 3 only (d) 1, 2 and 3

ANSWER

1. (c)
 2. (b)
 3. (c)
 4. (c)
 5. (c)
 6. (b)
 7. (a)
 8. (a)
 9. (a)
 10. (b)
 11. (d)
 12. (d)
 13. (a)
 14. (d)
 15. (a)
 16. (c)
 17. (b)
 18. (d)
 19. (c)
 20. (b)

21. (d)
 22. (d)
 23. (c)
 24. (a)
 25. (a)
 26. (d)
 27. (b)
 28. (c)
 29. (a)
 30. (d)
 31. (d)
 32. (d)
 33. (d)
 34. (b)
 35. (d)
 36. (d)
 37. (d)
 38. (a)
 39. (a)
 40. (d)

41. (b)
 42. (d)
 43. (b)
 44. (a)
 45. (c)
 46. (b)
 47. (a)
 48. (b)
 49. (b)
 50. (b)

MCQs Based on Current Affairs

1. Consider the following statements:

1. Ministry of AYUSH in association with All India Institute of Ayurveda (AIIA), New Delhi is going to celebrate 7th Ayurveda Day this year on 24th October, 2022.

2. Ayurveda Day is celebrated by the Ministry of AYUSH every year on the occasion of Dhanvantari Jayanti (Dhanteras) since 2016.

Which of the above statements is/are correct?

- A. 1 only B. 2 only
C. Both 1 and 2 D. Neither 1 nor 2

Answer- B

2. Consider the following statements regarding DNA sequencing:

1. DNA sequencing refers to the general laboratory technique for determining the exact sequence of nucleotides, or bases, in a DNA molecule.

2. The sequence of bases encodes the biological information that cells use to grow and operate.

Which of the above statements is/are correct?

- A. 1 only B. 2 only
C. Both 1 and 2 D. Neither 1 nor 2

Answer- C

3. Which country is not member of BIMSTEC?

- A. Bangladesh B. Bhutan
C. India D. Pakistan

Answer- D

4. Consider the following statements regarding project Mausam:

1. 'Project Mausam' was launched by the Ministry of Culture, Government of India at UNESCO's 38th World Heritage Committee Meeting held at Doha, Qatar, in 2014.

2. The Project is now being administered by the Archaeological Survey of India (ASI).

Which of the above statements is/are correct?

- A. 1 only B. 2 only
C. Both 1 and 2 D. Neither 1 nor 2

Answer- C

5. Mawmluh Cave is situated in which State?

- A. Punjab B. Tamil Nadu
C. Meghalaya D. Tripura

Answer- C

6. Consider the following statements regarding Bank Run:

1. A bank run occurs when large groups of depositors withdraw their money from banks simultaneously based on fears that the institution will become insolvent.

2. With more people withdrawing money, banks will use up their cash reserves and ultimately end up defaulting.

Which of the above statements is/are correct?

- A. 1 only B. 2 only
C. Both 1 and 2 D. Neither 1 nor 2

Answer- C

7. Consider the following statements regarding International Girl Child Day

1. The 10th International Day of the Girl Child was celebrated across the world on 11 October 2022 by the United National General Assembly.

2. In 1998 the Beijing Declaration and Platform for Action proposed an action plan to advance girls' rights

Which of the above statements is/are correct?

- A. 1 only B. 2 only
C. Both 1 and 2 D. Neither 1 nor 2

Answer- A

8. Which is highest lake in India?

- A. Lonar Lake B. Chola Lake
C. Vembanad Lake D. Chilika Lake

Answer- B

9. Which agricultural commodity of India gives the largest export value?

- A. Tea B. Basmati rice
C. Spices D. Cotton

Answer-B

10. Consider the following statements regarding salient feature of Pinaka Multi-Barrel Rocket Launcher system:

1. Night vision devices for driver and crew

2. Neutralisation of enemy guns/rocket locations
3. Laying of anti-personnel and anti-tank mines at a short notice

Which of the above statements is/are correct?

- | | |
|-----------------|-----------------|
| A. 1 and 2 only | B. 2 and 3 only |
| C. 1 and 3 only | D. 1, 2 and 3 |

Answer-D

11. Consider the following statements regarding YUVA2.0:

1. The scheme was launched on 2nd October, the birth anniversary of Mahatma Gandhi.
2. The National Book Trust, India, is the implementing agency of the scheme.

Which of the above statements is/are not correct?

- | | |
|-----------------|--------------------|
| A. 1 only | B. 2 only |
| C. Both 1 and 2 | D. Neither 1 nor 2 |

Answer-D

12. With reference to PM Vani Yojana, consider the following statements?

1. PM Vani Yojana was launched to increase broadband access through public Wi-Fi hotspots across the country.
2. No license or registration is required for service providers under PM Vani Yojana.

Which of the above statement(s) is/are correct?

- | | |
|-----------------|--------------------|
| A. only 1 | B. 2 only |
| C. Both 1 and 2 | D. Neither 1 nor 2 |

Answer- C

13. Which institution started the herStart initiative?

- | | |
|-----------------------|------------------------|
| A. IIT, Delhi | B. IIT, Kanpur |
| C. Gujarat University | D. University of Delhi |

Answer- C

14. Who founded the Kalachuri dynasty?

- | | |
|------------------------|-----------------------|
| A. Mr. Bhimsen | B. Maharaja Pothasiri |
| C. Maharaja Bhattadeva | D. Kokall I |

Answer-D

15. Consider the following statements:

1. The Election Symbols (Reservation and Allotment) Order, 1968 empowers the Election Commission to recognize and allot election symbols to political parties.
2. Under Para 15 of the Order, the Election Commission can adjudicate on name and symbol disputes between

rival groups or sections of a recognized political party.
Which of the above statement(s) is/are correct?

- | | |
|-----------------|--------------------|
| A. only 1 | B. 2 only |
| C. Both 1 and 2 | D. Neither 1 nor 2 |

Answer- C

16. Consider the following statements regarding The Drugs and Cosmetics Act, 1940:

1. The Drugs and Cosmetics Act, 1940 is an Act of the Parliament of India that regulates the import, manufacture and distribution of drugs in India.
2. The primary objective of the Act is to ensure that medicines and cosmetics sold in India are safe, effective and conform to state quality standards.

Which of the above statement(s) is/are correct?

- | | |
|-----------------|--------------------|
| A. only 1 | B. 2 only |
| C. Both 1 and 2 | D. Neither 1 nor 2 |

Answer- C

17. Consider the following statements regarding AFSPA:

1. Currently AFSPA is applicable in some parts of Assam, Nagaland, Manipur and Arunachal Pradesh.
2. Under Section 3 of the Act, the State governments and the MHA have concurrent powers to notify areas under the AFSPA.

Which of the above statements is/are correct?

- | | |
|-----------------|--------------------|
| A. 1 only | B. 2 only |
| C. Both 1 and 2 | D. Neither 1 nor 2 |

Answer- c

18. Consider the following statements regarding tokenisation?

1. The customer need not pay any charges for availing tokenisation.
2. Tokenisation of card is not mandatory for consumers.

Which of the above statements is/are correct?

- | | |
|-----------------|--------------------|
| A. 1 only | B. 2 only |
| C. Both 1 and 2 | D. Neither 1 nor 2 |

Answer- C

Personality



Matangini Hazra

In a procession during the Quit India Movement, an old woman, without any fear, was marching forward with the tricolor in her hand fearlessly. Even the bullets fired from the British side were not able to stop her move. Matangini Hazra fell on the ground while shouting Vande Mataram even after hitting two bullets in her hand and third on her forehead, but she was holding the tricolor in her hands.

The nation celebrated the 152nd birth anniversary of freedom fighter Matangini Hazra on 19th October. During the freedom movement in India, many such women came forward who gave a new direction to the freedom movement. Some women contributed by following the path of non-violence and some followed the revolutionary path. Among them was a great lady, Matangini Hazra.

On 19 October 1870, Matangini Hazra was born in an ordinary family in Hogla Medinipur district, near Tamluk city. Due to extreme poverty, she was married only at the age of 12 to 62-year-old widower Trilochan Hazra. In the Swadeshi movement of 1905, the nationalist character of Matangini came to the light. During the period of boycott and passive resistance, she had complete faith in the Gandhian method of work. She set up an example in front of the Indian women of that time by spinning wheel and wearing Khadi clothes. Matangini Hazra also actively participated in Gandhi's 'Salt Satyagraha'. In 1932, a procession took place in her village. There was no woman in it. Seeing this, Matangini joined the procession. She was also an active female participant of Gandhiji's civil disobedience movement.

On 17 January 1933, when the then Governor of Bengal, Anderson, came to Tamluk to suppress the 'Karbanti Movement', there was a protest against him. Matangini Hazra stood at the front with the black flag and she also showed the black flag with complete fearlessness. She was jailed with rigorous imprisonment for six months in Murshidabad jail. Her role was unprecedented even during the Quit India Movement. On 29 September 1942, a procession was taken out against the British government, in which more than 6000 protesters were present. Mostly women were involved in this. 71-year-old Matangini Hazra was leading this procession. The protesters had planned to storm the Tamluk police station. Their motive was to capture the police station. As soon as the procession reached the city, the British police ordered them to stop under Section 144 of the Indian Penal Code. Due to this, the crowd got scattered. In such a situation, Matangini moved forward with the tricolor in her hands. She was raising the slogans of Vande Mataram. Even after being hit by three bullets, she held the tricolor high.

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