

GS ANALYST

MONTHLY CURRENT AFFAIRS MAGAZINE

- ✓ Coverage of Monthly topics for GS Paper 1, 2, 3 & 4
- ✓ Key Concepts and Prelims Specific Topics
- ✓ Questions for Answer Writing Practice

PRELIMS

- ▣ Karla Caves
- ▣ Raja Rammohan Roy
- ▣ Asani Cyclone
- ▣ e-passport
- ▣ Floating Border Outposts
- ▣ Mission Sagar IX
- ▣ Pakkamalai- Gangavaram hills region
- ▣ Vaquita Porpoise
- ▣ Gene Bank Project
- ▣ H5 Bird Flu
- ▣ Monkeypox
- and many more

MAINS

- ▣ China's Global Security Initiative
- ▣ India-Germany Relations
- ▣ Open Prison for Women
- ▣ Asian NATO
- ▣ Effect of Pollution on Human Rights
- ▣ Open Source Technology
- ▣ Gig Economy
- ▣ Disaster Induced Displacement
- ▣ Marital Rape
- and many more

KEY CONCEPTS

- ▣ Urban Heat Island
- ▣ WPI Inflation
- ▣ Heat Wave
- ▣ Nordic Region
- ▣ Black Hole
- ▣ Viharas
- ▣ Torrifed Biomass
- ▣ Ecologism
- ▣ Rupee Convertability
- ▣ Magnetosphere
- ▣ Black Widow Binary Star
- ▣ Compensation Cess
- and many more

CONTEMPORARY ISSUE BASED ESSAY

**The Indo-Pacific region
has become the main
theater of geopolitics**



— **Disclaimer** —

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

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

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(MAY, 2022)

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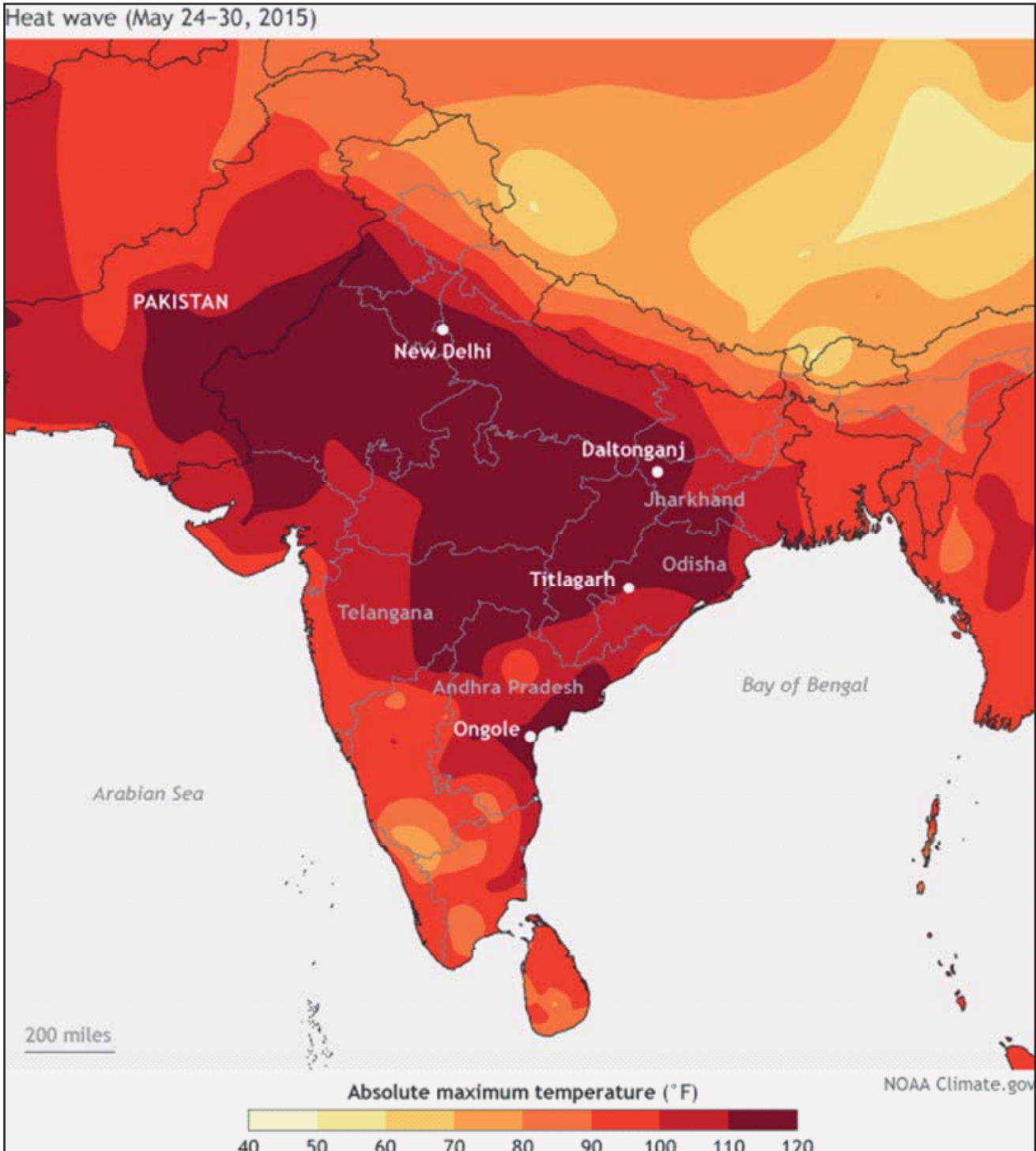
SECTION: A
(MAINS)

CURRENT AFFAIRS

WHAT IS CAUSING THE INTENSE HEAT IN NORTH, WEST, CENTRAL AND EAST INDIA?

CONTEXT:

There is an ongoing heatwave in India that has forced millions of people indoors, with air conditioner sales nearly doubling when compared to the previous year.



Present situation

- While heatwaves are common in India, especially in May and June, summer began early this year with high temperatures from March itself with average maximum temperatures in the month.
- The Centre for Science and Environment, a think-tank, says that **early heatwaves this year have affected around 15 states**, including the northern state of Himachal Pradesh, known for its pleasant temperatures.

ANALYSIS

What are heatwaves?

- The **India Meteorological Department** qualitatively describes heatwave as a condition of air temperature which becomes fatal to the human body when exposed.

The General Occurrence

- **Months:** Heat waves usually occur in the months of March to June and in some rare cases even in July.
 - ▶ The peak month of the heat wave over India is May.
- **Regions:** Heat waves generally occur over plains of **northwest India, Central, East and north Peninsular India**.
 - ▶ It covers **Punjab, Haryana, Delhi, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Odisha, Madhya Pradesh, Rajasthan, Gujarat, parts of Maharashtra and Karnataka, Andhra Pradesh and Telangana**.
 - ▶ Sometimes it occurs over Tamil Nadu and Kerala also.
- Quantitatively, it is defined based on the temperature thresholds over a region in terms of actual temperature or its departure from normal.
- **Declaration**
 - ▶ **Heatwave:** A heatwave is declared when an area logs a maximum temperature of 45 degree Celsius.
 - ▶ **Severe heatwave:** A severe heatwave is declared if the maximum temperature crosses 47 degrees.
- For coastal regions, heat wave may be described provided actual maximum temperature is 37 degrees or more.

Different standards on heatwaves

Several countries have adopted their own standards on heatwaves:

- **United States:** The US National Weather Service defines a heatwave as a spell of “abnormally and uncomfortably hot and unusually humid weather” over two days or more.
- **Denmark:** A heatwave occurs when the mean of the highest recorded temperature measured over three consecutive days exceeds 28°C (82.4°F).
- **Australia:** In Adelaide, Australia, a heatwave is defined as five straight days with temperatures at or above 35°C (95°F), or three consecutive days at or over 40°C (104°F).

Understanding the geographical aspect of heatwave

- One of the causes of these extreme heat waves has been the unusual **north-westerly winds**.
- These anomalous north-westerlies overpowered the moist southerly winds that typically come off the water and kept pre-monsoon showers offshore.
- This deviation from normal wind trends allows hot air from desert areas to the northwest to spread over much of the country.
- Heat waves form when high pressure aloft in around 3,000–7,600 metres above the region and remains over a region **for several days** up or **weeks**.
- This is common in summer, both in **Northern and Southern Hemisphere** as the jet stream ‘**follows the sun**’. On the equator side of the jet stream, in the upper layers of the atmosphere, is the high pressure area.
- During summer, weather patterns are generally slower to change than in winter. As a result, this upper level high pressure also moves slowly.
- Under high pressure, the air subsides (sinks) toward the surface, warming and drying adiabatically, inhibiting convection and preventing the formation of clouds.
- Reduction of clouds increases shortwave radiation reaching the surface.
- A low pressure at the surface leads to surface wind from lower latitudes that bring warm air, enhancing the warming.
- Alternatively, the surface winds could blow from the hot continental interior towards the coastal zone, leading to heat waves there causing adiabatic warming.

What are the favourable conditions of heat wave formation?

- **Transportation / Prevalence of hot dry air over a region:** There should be a region of warm dry air and appropriate flow pattern for transporting hot air over the region.
- **Absence of moisture in the upper atmosphere:** As the presence of moisture restricts the temperature rise.
- **The sky should be practically cloudless:** To allow maximum insulation over the region.
- **Large amplitude anti-cyclonic flow** over the area.

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Wet Bulb Temperature

This heatwave has also brought the wet bulb temperature concept into mainstream conversation.

- In simpler terms, wet bulb temperature tells us at what level our bodies will be unable to cool themselves down by sweating.
- In this case, the threat of a heat stroke rises dramatically.
- Wet bulb temperature combines heat and humidity to indicate how much evaporation can be absorbed into the air.
- It measures the lowest temperatures that our bodies can reach when we are in hotter environments, by sweating.

Intense heating of earth during summer

- The Northern Hemisphere experiences more direct sunlight during May, June, and July, as the hemisphere faces the Sun.
- It is Earth's axial tilt that causes the Sun to be higher in the sky during the summer months, which increases the solar flux.
- However, due to seasonal lag, June, July, and August are the warmest months in the Northern Hemisphere.

Cause of summers in Northern hemisphere:

- **Axial Tilt:** The seasons result from the Earth's axis of rotation being tilted with respect to its orbital plane by an angle of approximately 23.4 degrees. This tilt is also known as "obliquity of the ecliptic".
- Regardless of the time of year, the northern and southern hemispheres always experience opposite seasons. The effect of axial tilt is observable as the change in day length and altitude of the Sun at solar noon (the Sun's culmination) during the year.
- **Elliptical Earth orbit:** Compared to axial tilt, other factors contribute little to seasonal temperature changes. The seasons are not the result of the variation in Earth's distance to the Sun because of its elliptical orbit. Orbital eccentricity can influence temperatures.
- **Maritime and hemispheric:** Seasonal weather fluctuations also depend on factors such as proximity to oceans or other large bodies of water, currents in those oceans, El Niño/ENSO and other oceanic cycles, and prevailing winds.
- **Tropics:** The tropical and subtropical regions see little annual fluctuation of sunlight. However, seasonal shifts occur along a rainy, low-pressure belt called the Intertropical Convergence Zone (ICZ). As a result, the amount of precipitation tends to vary more dramatically than the average temperature.
- **Mid-latitude thermal lag:** In meteorological terms, the solstices (the maximum and minimum insolation) do not fall in the middles of summer and winter. The heights of these seasons occur up to 7 weeks later because of seasonal lag. Seasons, though, are not always defined in meteorological terms.

What is Loo?

- The heat waves are normal during summer in India, often called as Loo. This originates in the deserts of Rajasthan and western part of the continent.
- It affects mostly the north and the central parts of India, and remains over the region till the onset of monsoon.
- The **Loo** is a **strong, dusty, gusty, hot and dry summer** wind from the west which blows over the Indo-Gangetic Plain region of North India and Pakistan.
- It is especially strong in the months of May and June.

Is climate change responsible for heatwaves in India?

- The heat-trapping consequences of global warming imply that climate extremes such as heatwaves are expected to rise in frequency. Instances of extreme rainfall, as well as longer rainless spells are expected, according to assessments by the Intergovernmental Panel on Climate Change.
- The main reason for the scorching heat in the northern parts of the country is **lack of rainfall**.
- Usually, periods of high temperature are punctuated by periodic episodes of rain but this was largely absent during March and April.
- Ironically, April also saw maximum instances of extreme rainfall since 2018 though it was concentrated in the south and north-eastern India.
- The rain-bearing western disturbances originate because of temperature gradients between the northernmost parts of the globe and the latitudes passing through West Asia. Weaker gradients mean weaker rains.
- This March and April, cooler than normal conditions in the Pacific Ocean failed to aid rainfall in north India.

What is heat Index?

- The heat index is a measure of how hot it feels when relative humidity is factored with the actual air temperature.
- It is used to measure the intensity of heat waves in a region.
- In certain countries it is defined in term of the heat index based on temperature and humidity or based on extreme percentile of the temperatures.

Impacts on India

- **Health effects: Hyperthermia**, also known as heat stroke, becomes common during periods of sustained high temperature and humidity.
- **Mortality:** Heatwaves have killed more than 17,000 people in 50 years in India, according to a research study by IMD scientists.
- **Crop losses:** heat waves and excessive heating impacts the standing crops of the regions, as they are not immune to more heat at that time of the year.
- **Psychological and sociological effects:** In addition to physical stress, excessive heat causes psychological stress, to a degree which affects performance, and is also associated with an increase in violent crime.

- ▶ High temperatures are associated with increased conflict both at the interpersonal level and at the societal level.
- **Increase in surface ozone: ozone pollution** in urban areas is especially concerning with increasing temperatures, raising heat-related mortality during heat waves. During heat waves in urban areas, ground level ozone pollution can be 20% higher than usual.
- **Lead to wild fires:** If a heat wave occurs during a drought, which dries out vegetation, it can contribute to bushfires and wildfires.
- **Power outages:** Heat waves often lead to electricity spikes due to increased air conditioning use, which can create power outages, exacerbating the problem.

CHINA'S GLOBAL SECURITY INITIATIVE

CONTEXT:

Recently China announced to launch a new initiative, 'the Global Security Initiative' to counter the QUAD in the Indo-Pacific region.

◎ BACKGROUND

- Indo-Pacific region remained a major focus not only in the contemporary times but from the historical times.
- Even during the Colonial era, the British followed the expansionary policy by colonizing various countries like India, Myanmar and Sri Lanka to have a strategic presence in the region.
- The Indian Ocean region and the Pacific Ocean region account for 60% of world trade.

How 'QUAD' came into picture?

- Chinese claims over the Indo-Pacific region gave a potential threat to **free navigation and overflight through the region**.
- As a response to increasing Chinese assertiveness, **USA-India-Japan-Australia** collaborated to form a grouping known as **QUAD**.
- Increasing cooperation of QUAD in the region gave a threat to the Chinese ambitions.

◎ ANALYSIS?

Why Indo-Pacific region remains so important?

- The Indo-Pacific region is important from the global perspective because of three reasons:
- **Cluster of important economies:** Presence of the world's prominent economies USA, China, India and Japan are located in the region.
- **Economic contribution:** The Indo-Pacific region offers enormous economic opportunities, both at the product and factor markets—as the region approximately comprises of as many as 38 countries, accommodating 65 percent or 4.3 billion of the world population, and accounts for 63 percent of the world GDP.
- **Intra-region partnership:** There has been an increased vigour in intra-region partnerships within countries in the Indo-Pacific, and also with extra-regional actors to offset the intensifying presence of China.
- **Emerging economies:** New emerging economies like India, the Philippines and other ASEAN countries, including Asian tigers are Present in this region.

- **Eastern African Nations:** Indo-Pacific also covers the eastern boundaries of Africa, which has wealth of natural resources.
- **Maritime trade:** Above 50 percent of the world's maritime trade occurs in this region.
- **Marine resources:** The presence of many island nations and present of continental slopes provides a proper ground for many economic activities:
 - ▶ Fishing
 - ▶ Energy resources
 - ▶ Generation of renewable energy

Why it is significant for India?

- **Cultural linkage:** India is the birthplace of several religions, and Buddhism is one of them. ASEAN countries located in this Indo-Pacific region have huge presence of Buddhists. India has historical cultural ties with these nations.
- **Colonial linkage:** India and many other nations of the region had a common colonial past, i.e. colonised by then European powers.
- **Strategic Perspective:** India has been the pre-eminent power in the Indian Ocean region and net security provider for many island states.

India's diplomatic participation in the region

- India has been an enthusiastic participator in mechanisms that signify India's growing responsibility in the Indo-Pacific:
 - ▶ East Asia Summit (EAS)
 - ▶ Indian Ocean Rim Association (IORA)
 - ▶ Association of Southeast Asian Nations (ASEAN)
 - ▶ Defence Ministers Meeting Plus
- India has also been upholding the Free and Open Indo-Pacific (FOIP) approach and the Indo-Pacific Oceans Initiative (IPOI) apart from hosting multilateral naval exercise near the Andaman and Nicobar Islands
 - ▶ Exercise "Milan" (naval)
 - ▶ Exercise "Malabar" (naval)
 - "Tiger Triumph" military exercise

How China is playing in the Indo-Pacific region?

- China has taken several steps to secure its strategic presence and increase the status quo in the region, like the debt trap policy and territorial claims over international waters and islands.
- Territorial claims on international waters:** China is losing its territorial claims in the South China Sea and conflict with other nations sharing the sea.
- Claim over Taiwan:** Territorial and political claim over Taiwan is one of the major steps taken by China to secure its presence.
- Military bases:** Military expansionism has emerged as one of the key themes of Chinese assertiveness. Opening and management of several dual purpose (Military and Civilian) ports, militarisation of hitherto unoccupied islands and artificial islands.

(See Figures 2.1)

How China is playing in the region?

- China has always had a high trade volume with the major Indo-Pacific countries, and this has been rising.
- Over the years, Beijing has strengthened its economic ties with the Indo-Pacific nations.
- Countries such as **Australia, South Korea, and Japan** run a trade surplus against China, while India and Singapore run a trade deficit.

- In addition to enjoying a trade surplus, **Australia, South Korea, and Japan** has **China** as their largest trading partner, and exports to China contributes significantly to their own economies.
- Therefore, despite political hiccups, it is extremely important for these countries to maintain economic harmony with Beijing—so that there is no consequential decline in Chinese demand for their commodities.

(See Figures 2.2)

What is Global Security Initiative?

- An action plan is taken by China to counter the bloc and group politics in the Indo-Pacific region, e.g., QUAD and AUKUS.

What are the main objectives of the Initiative?

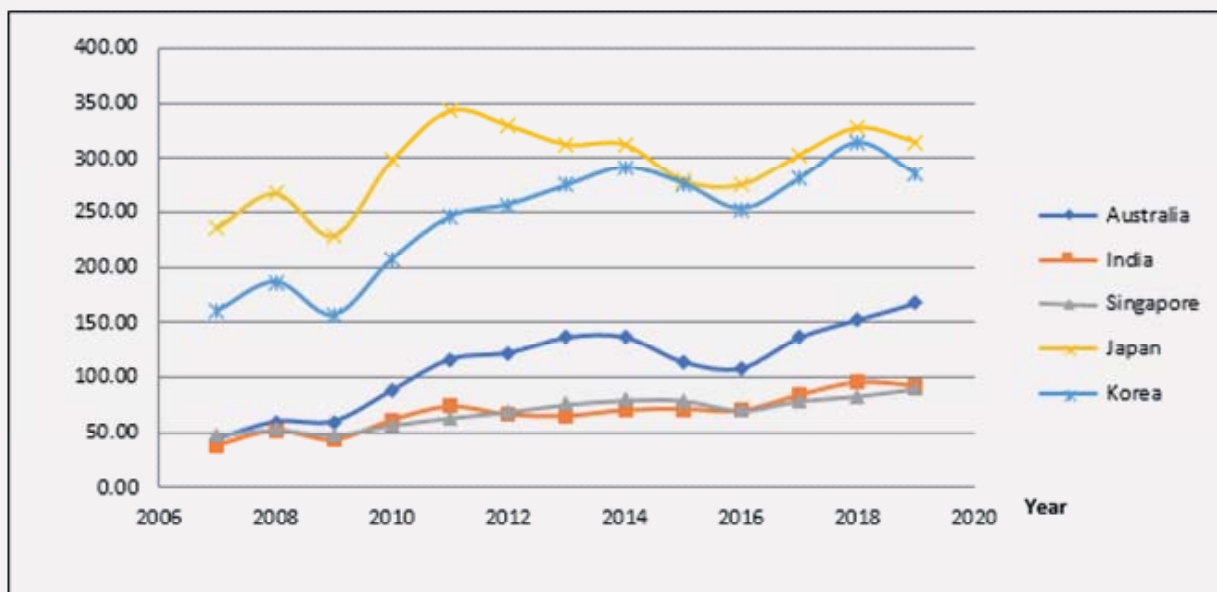
- Comprehensive, Cooperation and sustainable security in Indo-Pacific Region.
- Oppose unilateralism and say no to group Politics and blocs confrontation in the region.
- Build an Asian Security model of Mutual Respect, openness and integration.

How far this can impact the present grouping in this region?

- The main purpose behind the new initiative by China is to confront the USA hegemony in the Indo-Pacific region.



(Figure: 2.1)



Source: Author's own, data from World Integrated Trade Solution (WITS), The World Bank

(Figure: 2.2)

- Militarisation of the new initiative can put a major challenge not only to the USA but also to other nations sharing the borders in this region.
- **Impact on Trade:** Indo-Pacific region is also significant on the grounds of International trade via this region. The new initiative by China can provide China with a long arm strategy to put barriers in this region.
- **Threat to territorial Integrity:** Many ASEAN countries are facing territorial disputes with China, which may be enhanced via this new policy.
- **Threat to Democratic Ideals:** Having a strategic presence in the region have the potential to give a threat to the democracy.

How this could impact India?

- **Territorial integrity:** Among the other nations of QUAD India is the only country which shares a land boundary with China. Territorial conflict between two nations remained at a central position in diplomatic relations between the countries.
- **Strategic Presence:** India is also trying to increase its strategic presence in the Indo-Pacific region to promote peace, security and free navigation in the international waters. A new security initiative can pose a threat to the strategic presence of India in this region.
- **Trade:** Despite territorial conflict and power aspirations in the region, China has always remained one of the largest trade partners for India. Countering the QUAD initiative will have a direct impact on India's trade balance with China.

- **Pharmaceuticals:** Apart from trade in other products India is also relying on China for its API components for pharmaceutical companies.

What will be the impact of rising power aspirations in this region?

- **Peace and stability:** Rising power aspirations from various countries may disturb the sovereignty and integrity of the nations in this region. Along with having a direct impact on maintaining peace in the region.
- **New Cold War:** Hegemony of China and the USA in the region and the power aspirations of these nations will give the scope for re-emergence of a new cold war in the region.

What steps India should take?

- **Non-Aligned stance:** India should maintain an equal distance from both nations. The relationship between USA and China both are important for India in various aspects. India should maintain a non-aligned relationship with both nations.
- **Panchsheel:** India should the promote the values of the Panchsheel Principles:
 - ▶ Mutual respect's territorial integrity and sovereignty.
 - ▶ Mutual non-aggression
 - ▶ Mutual non-interference in each other's internal affairs
 - ▶ Equality and mutual benefit
 - ▶ Peaceful co-existence

- **Neighbourhood First Policy:** India should focus on the neighbourhood first policy to have a close relationship with the nations in the region.
- **SAGAR Doctrine:** Under SAGAR (Security and Growth for All in the Region) Doctrine India should collaborate with nations sharing the Indian Ocean.
- **Act East Policy:** India should enhance its cooperation with the eastern nations like ASEAN countries to maintain the status quo in the region.
- **South-south Diplomacy:** Most of the emerging economies share the Indo-Pacific region. India should focus on South-South diplomacy to collaborate with these emerging economies.
- **International and multilateral forums:** India should collaborate with other nations for securing a proper rule-based world order in the international waters.
- **Aatmanirbhar Bharat:** India should promote its domestic industries and exports, to reduce the dependence on other nations for essential imports.
- **Diversify the supply chain:** Diversification of the supply chain can reduce the dependency on a particular country.
- **AYUSH and Alternative medicines:** Ayush Scheme should be promoted so that our traditional medicines can be preserved and can reduce the use of API for pharmaceuticals. On this front government has introduced AYUSH Visa for treatment via Ayurveda and alternate medicines.

◎ CONCLUSION:

India is the only country in the QUAD grouping which shares a land boundary with China, and the territorial disputes played an important role in deciding diplomatic relations between the two nations. India should be actively involved in world affairs and world trade and keep the idea of national interest and nation first policy to maintain a balance with every nation. To counter Chinese hegemony in the region India should actively engage in the QUAD grouping in various dimensions such as vaccine policy, energy security and soft diplomacy. Soft diplomacy and cultural linkages with other nations sharing the Indo-Pacific region could enhance India's strategic presence in the region.

PRACTICE QUESTION

- Q1: Briefly explain the purpose of Global Security Initiative of China. Do you think Indo-Pacific region is becoming a breeding ground of New Cold War? Substantiate your answer.**
- Q2: Do you think 'Quad' can be transformed into an Asian NATO? Analyze the statement with respect to USA's and India's vision for Indo-Pacific region.**

INDIA-GERMANY RELATIONS

CONTEXT:

Germany and India signed a series of bilateral agreements focused on sustainable development that will see the South Asian nation receive 10 billion euros (\$10.5 billion) in aid by 2030 to boost the use of clean energy.

- ❑ The accords were signed during a visit to Berlin by Prime Minister Narendra Modi.
- ❑ Germany Chancellor Olaf Scholz is seeking to elicit India's support for the tough stance taken by Europe and the United States toward Russia over the war in Ukraine.
- ❑ PM Modi held bilateral talks with Chancellor Olaf Scholz and participated in the sixth round of Inter-Governmental Consultations (IGC) between the two countries.

The Sixth German-Indian intergovernmental consultations

- ❑ It is a discussion format that Germany conducts with only a few select partners.
- ❑ Location: Held in Berlin
 - Focus area: global security policy issues, deepening of bilateral relations and climate crisis.

◎ BACKGROUND

- Germany and India's diplomatic relations date back more than seven decades.
- In 1951, India was one of the **first countries to grant the Federal Republic of Germany diplomatic recognition** following the **Second World War**.
- Today, the countries are linked by a **strategic partnership**.
 - One of its key pillars is their shared interest in strengthening multilateral cooperation and in promoting stability and security in the **Indo-Pacific region**.
- India is also **Germany's largest Global Development Partner**. This partnership, too, focuses on climate protection and mitigating the effects of global warming.
- Efforts here include expanding renewables, increasing energy efficiency and promoting a sustainable economy.
- In March 2021, the two countries celebrated 70 years of diplomatic relations.

Info

- Since 2011, bilateral intergovernmental consultations have been held every two years, alternately in Germany and India. The talks aim to further deepen the countries' many areas of bilateral cooperation.

◎ ANALYSIS

Why India assumes significance for Germany?

- Since the independence Germany and India has maintained a historical ties in the skill development and technical development front. Post-independence, Nehru's visit to Germany paved the way for establishments of Indian Institute of Technologies (IITs).
- **Trade and commerce:** Germany is the largest trade partner in Europe and has a share of around 3% FDIs in Indian market. German trade with India, the world's second-most populous country with nearly 1.4 billion people, was less than 10% of its trade with China in 2021.
- **Strategic importance:** Germany considers India as one of the alternative to Chinese dominance in the south Asian region.
- **Military and security cooperation:** India is a central partner for German and European foreign policy in the Indo-Pacific. From the long-term perspective, it is considered the only country that could demographically and economically counterbalance China in the Indo-Pacific.

Germany was the second country after France to come forward with an Indo-Pacific strategy.

Key-takeaways from the Meeting

- Germany and India signed a series of bilateral agreements
- Germany committed to provide additional support worth euro 10 billion to India by 2030 to support green growth initiatives.

- India and Germany also agreed to work together on joint projects in third countries in an apparent signal to counter China's debt-driven infra financing model.
- India and Germany would be signing a migration and mobility agreement to facilitate two-way movement of students, professionals and researchers while addressing the challenges of illegal migration.
- Both the governments agreed to support each other's efforts to expand the internationalisation of their higher education systems, interlinking further the innovation and research landscapes of both countries, and strengthening dual structures for vocational education and training.
- **EU-India Trade and Technology Council:** EU-India Trade and Technology Council. The decision to set up a Trade and Technology Council will be the first for India with any of its partners and second for the European Union following the first one it has set up with the US.
- **Green and sustainable developments:** India and Germany both have agreed to navigate into the new pathways for green development and clean energy. Indo-Germany cooperation in green development will be guided by the commitments made under Paris Agreement and SDGs.
- **International Trade and WTO:** both the nations have promised to cooperate at WTO for its reform along with preserving the autonomy of two-tier appellate tribunal. Open, inclusive, free and fair trade are the shared objectives of the two nations.
- **India –EU FTA:** Germany has agreed to negotiate at EU for India-EU Free Trade Agreement.
- **Countering tax evasion:** Shared commitments in OECD Framework for Base Erosion and Profit Shifting to counter the tax evasions by multinational companies.
- **Health collaboration:** Both the nations have emphasized on ensuring security of medical supply chains, strengthening global preparedness for health emergencies and reducing future zoonotic risks, taking a One-Health-Approach.
- **Security Domain:** Countering terror financing and money Laundering both have agreed to work upon the Joint Comprehensive Plan of Action. Secure and safe cyber space are the major focused domain in the new technological revolution.
- **Humanitarian crisis:** both have agreed to respect the international rule and respect the territorial integrity and sovereignty of every nation, and protect the rights of the civilians. Peace and prosperity should be maintained by the nations.
- Other shared values at multilateral cooperation: India and Germany both have agreed strengthen

ties at multilateral and regional level for effective and purposive reforms:

- ▶ UNSC reform to make more purposive and reflective of contemporary issues.
- ▶ Free, open and inclusive Indo-Pacific region.
- ▶ Preserving the centrality of the ASEAN in the region
- ▶ India at G7: Germany has welcomed the step to invite India in the G7 summit.

How these agreements benefit India?

- **Green Initiatives:** At the climate change and green development initiative India will be get the impetus and technological support, which will help to achieve the targets of SDG and Paris agreement.
- **Waste management and circular economy:** Swachh Bharat Abhiyaan initiated by India on the principles of clean India will get a supporting hand to improve the infrastructure for waste management system and diversify the system into a circular economy.
- **Rural and Agro economy:** Collaboration in the agricultural front will give a scope for Indian farmers to diversify their source of income and promote a sustainable agro economy.
- **Trade and taxation:** Framework under OECD to prevent BEPS will give a boost to the revenue collection from the multinational companies. Diversification of supply chain and markets have the potential to provide a broader base for supply and wide market accessibility to provide a safe cushion to any unpredictable international shocks.
- **Smart City Initiatives:** Policy framework for Sustainable Smart City and proper implementations for the projects to avoid and mitigate the diastral risk will be assisted by the German Expertise.
- **Representation at Multilateral and international forums:** India's invitation to the G7 summit is has been welcomed by the Germany which gave a High Ministerial position to India at International Forum. Collaboration at UNSC will provide a support to get a better representation.

What shall be done more?

- **Data Security and Protection:** India should follow and maintain the data security measure in accordance with European standards to have safe and secure line for digital cooperation.
- **Trade policy measure:** More inclusive and transparent policy to be ensured to get the benefits of foreign investors and securing the interests of the domestic investors.

- **Regional Cooperation:** India's foremost focus should be strengthening regional cooperation like BIMSTEC to secure the strategic position the region.
- **Dispute resolution and arbitration:** India should look upon its dispute resolution and arbitration process and make it more effective and responsive.

◎ **CONCLUSION:**

India Germany shares historical ties since independence on the field of skill developments

and technical institution. Though India and Germany have a strong strategic partnership, in the new contemporary issues of geo politics it's become mandatory to reframe the partnership structurally. Inter-Governmental Consultation in which India has participated and co-chaired the council with Germany has paved a new path for comprehensive and inclusive ties. From territorial space to cyber space both the nations shared the common interest of safe and security respecting the international law and sovereignty of every nation. Peace and stability with clean environment are necessary conditions for the human development and human rights.

PRACTICE QUESTION

- Q1: Indo-German Strategic Partnership is based on the common values and principles. Discuss how Indo-German collaboration on various geo-political and economic issues can help create a mutually beneficial partnership for both the countries.**
- Q2: Ties between India and Germany have been strengthening over the years but there is still vast potential that remains untapped. Comment.**

QUAD: ASIAN NATO OR ARC OF DEMOCRACY?

CONTEXT:

Leaders of the four Quad nations met in Tokyo and discussed wide range of topics from the war in Europe to dealing with China, and their cooperation on non-security initiatives such as tech and infra.

Background of Quad:

- Following the Indian Ocean tsunami, India, Japan, Australia, and the US created an informal alliance to collaborate on disaster relief efforts.
- In 2007, then PM of Japan, Shinzo Abe, formalised the alliance, as the **Quadrilateral Security Dialogue or the Quad**.

What is the structure of Quad?

- The Quad is not structured like a typical multilateral organisation and lacks a secretariat and any permanent decision-making body.
- Instead of creating policy along the lines of the European Union or United Nations, the Quad has focused on expanding existing agreements between member countries and highlighting their shared values.
- Also unlike NATO, the Quad does not include provisions for collective defence, instead it focuses on the conduct of joint military exercises as a show of unity and diplomatic cohesion.

In 2020, the trilateral India-US-Japan Malabar naval exercises expanded to include Australia, marking the first official grouping of the Quad since its resurgence in 2017 and the first joint military exercises among the four countries in over a decade.

What are the Objectives of Quad?

- maritime security
- combating the Covid-19 crisis
- addressing the risks of climate change
- creating an ecosystem for investment in the region
- boosting technological innovation
- Quad members have also indicated a willingness to expand the partnership through a so-called Quad Plus that would include South Korea, New Zealand, and Vietnam amongst others.

What are the issues faced by members of Quad with China?

Each of the Quad members are threatened by China's actions in the South China Sea and its attempts to

extend its sphere of influence through initiatives such as the One Belt One Road Project.

- US:** The US has long been concerned about the global competition with China and successive US presidents have maintained that China aims to subvert the international rules-based order.
- Japan:** Japan and Australia are likewise both concerned about China's expanding presence in the South and East China Seas.
 - Japan and China have been traditional rivals and have competing territorial and maritime claims.
- Australia:** For Australia in particular, relations with Beijing are at a considerable low after Australia passed foreign interference laws in 2018 which China responded to by restricting trade to Canberra.
 - Australia's apprehension about China's rise has grown even more due a defence agreement signed between China and Solomon Islands which allows the former to station its armed forces on latter which is very close to Australia.
- India:** As the only Quad country to share a land border with China, India is also suitably wary of Beijing but also reluctant to allow tensions to spill over.
 - India's territorial concerns with China have grown over the last few years especially after the latter's aggressive posturing in the Ladakh region.
 - The Trans-Karakoram highway built by China which passes through Pakistan Occupied Kashmir is seen by India a challenge to its security which can be answered through a multi-lateral forum.

China's response to Quad:

- China initially opposed the formation of the Quad and in the 13 years since, Beijing's position has not changed.
- In 2018, the Chinese Foreign Minister referred to the Quad as a "headline-grabbing idea" and after the joint statement that was issued Quad members in 2021, the Chinese foreign ministry accused the group of openly inciting discord among regional powers in Asia.
- Beijing sees the existence of the Quad as part of a larger strategy to encircle China and has pressured

countries like Bangladesh to avoid cooperating with the group.

- China flying its fighter jets over the Japanese airspace before the recent meeting of Quad was an example of who apprehensive it is about the grouping.
- Though it has to be pointed out that there is no direct reference to China or military security in any statement issued on behalf of Quad.
- This in turn has led experts to speculate that the Quad will refrain from addressing the military threat posed by China and instead focus on its economic and technological influence.
- The Quad's decision to establish working groups on vaccine development and critical technologies can then be viewed as an attempt to constrain China but more importantly, to create a democratic, inclusive blueprint that will encourage other states to work with the Quad.

What were the outcome of the recent Quad meeting?

- The leaders launched a maritime initiative to combat illegal fishing and pledged to invest more than \$50bn in developing infrastructure in the Indo-Pacific as part of their efforts to counter China's growing influence in the region.

- Quad leaders also discussed the fallout from Russia's invasion of Ukraine – an issue that has risked division among the group.

India, which has close ties with Russia, is the only member that is yet to condemn Moscow's war.

- In a joint statement the leaders of member countries said the Quad's latest measures are aimed at demonstrating that the group "is a force for good" and that it is "committed to bringing tangible benefits to the region" at a time of profound global challenges.
- And while the statement did not mention China by name, the leaders said they "strongly oppose any coercive, provocative or unilateral actions that seek to change the status quo" in the Indo-Pacific.
- These include "the militarization of disputed features, the dangerous use of coast guard vessels and maritime militia, and efforts to disrupt other countries' offshore resource exploitation activities" – all accusations that have been levied against China.
- The leaders also announced a new maritime surveillance initiative – the **Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA)** – that it said will work with regional partners to respond to humanitarian and natural disasters and combat illegal fishing.

PRACTICE QUESTION

Q1: Discuss the significance of the Indo-Pacific Economic Framework for Prosperity for India?

Q2: China is alarmed by the Quad but its threats are driving the group closer together. Elucidate.

OPEN PRISON FOR WOMEN

CONTEXT:

Tamil Nadu's Minister for Law, Courts, Prisons and Prevention of Corruption recently said the government would consider setting up an open prison for women.

◎ BACKGROUND

- The philosophy on the basis of which the 'open prison' exists is reflected in the two dictums of **Sir Alexander Paterson**.
 - ▶ **First**, a man is sent to prison as punishment and not for punishment.
 - ▶ **Second**, one cannot train a man for freedom unless conditions of his captivity and restraints are considerably relaxed.
- The need for having open penal and correctional institutions was recognised and extensively discussed in the first **United Nation Congress on the Prevention of Crime and the Treatment of Offenders** held in Geneva in 1955.
- The **United Nations Standard Minimum Rules for the Treatment of Prisoners**, popularly known as the **Nelson Mandela Rules**, laid down the objectives of open prisons stating, that such prisons provide no physical security against escape but rely on the **self-discipline** of the inmates, provide the conditions most favourable to the rehabilitation of carefully selected prisoners.
- The **All-India Committee on Jail Reform** constituted in 1980 recommended the government to set up and develop open prisons in each state and UT.

◎ ANALYSIS

What are open prisons?

- Open prisons have relatively less stringent rules as compared to the controlled jails.
- They go by many names like minimum-security prison, open air camps or prison without bars.
- The fundamental rule of an open prison is that the jail has minimum security and functions on the self-discipline of the inmates.
- The jail does not confine them completely but requires them to earn their living to support their families, living with them inside the jail.
- Prisoners can move out of the prison for their work and are supposed to come back to the prison campus after their working hours.
- Every state in India has a prison law, like the Rajasthan Prisoners Rules and Andhra Pradesh

Prison Rules, 1979. Seventeen states are reported to have functional open jails with Rajasthan having 31 such prisons, the highest that any state has.

Who are eligible for open prisons?

- Every state law defines the eligibility criteria of inmates who can be in an open prison.
- The principal rule is that an inmate eligible for open air prison has to be a convict.

What are the benefits of open prison?

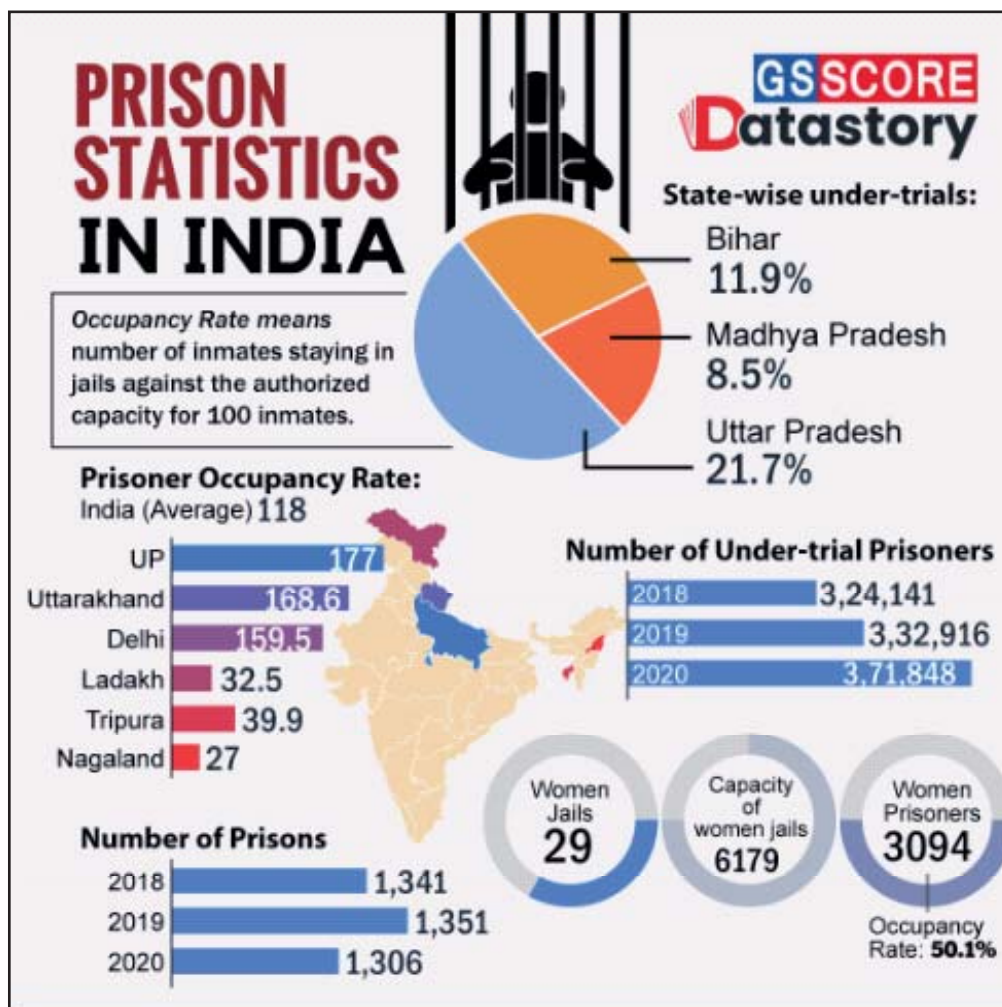
- It will reduce overcrowding and operational costs of prison administration.
- It will reduce the psychological pressure and lack of confidence among prisoners when they assimilate into society.
- It goes with the repeated call to develop a humane attitude and reformative approach towards the offenders in society.

Criticisms of the Open Jails in India

- **Under-Utilisation:** Open Prisons are under-utilised. These prisons have a capacity to accommodate 25776 prisoners however, only 3786 prisoners are currently in these prisons (as of 2015).
- **Lack of accountability:** In most states a committee select prisoners and are not expected to provide reasons for their selections. Thus, they have no accountability which leads to partiality and corruption.
- **Applicability:** There is no provision of Open Jails for under-trial prisoners.
- **Inadequate Open Prisons:** Some states are concentrated with Open Prisons while some have just one and no Union Territory in India has an Open Prison. Due to the state list subject, this inequality exists among different states.
- **Outdated laws:** The rules and laws governing the selection and administration are extremely old and thus unfit for the present situations.

About Prisons System in India:

- Prisons, as penal and correctional institutions, have existed in India and abroad since times immemorial. Prisons confine criminals, convicts and under-trials.



- The primary purpose of prisons is to isolate or alienate such people from the society.
- They are jailed for a certain period but the purpose of reformation and rehabilitation is sometimes defeated due to the prison environment and the treatment meted out to prisoners.
- The administration and management of the modern prison system in India is governed by the **Prisons Act of 1894**, which has its origins in the recommendations of the **"Prison Discipline Committee"** appointed in 1836 by **Lord Macaulay**, followed by constitution of four jail commissions to review the system from time to time.

Prison Statistics in India

- As on 31st December, 2020 there were more than 1,300 Jails in the country.
- State of **Rajasthan** has the highest number (145 out of 1,306) of jails among the States/UTs followed by Tamil Nadu (142), Madhya Pradesh (131), Andhra Pradesh (106), Odisha (92) and Uttar Pradesh (73). These six States together cover 52.8 % of total jails in the country.
- The highest number of under-trial prisoners were

lodged in District Jails (50.0%, 1,86,089 under-trials) out of total 3,71,848 under-trials followed by Central Jails (36.1%, 1,34,322 under-trials) and Sub Jails (11.9%, 44,402 under-trials) as on 31st December, 2020.

- The country's jails are crowded to 118% of their capacity, with a count of 4.33 lakh prisoners against a capacity of less than 3.81 lakh.
- The ratio between the prison staff and the prison population is approximately 1:7.
- Prisons Statistics of India (PSI) 2020 puts the percentage of under-trials at 76% in December 2020:

Major Issues related to Prisons in India

- **Overcrowding:** Overcrowding affects the already constrained prison resources and renders separation between different classes of prisoners difficult.
- **Under-trials:** Two of every three prison inmates in the country are under-trials.
 - ▶ For example, it is 11% in the UK, 20% in the US and 29% in France.
- **Corruption and extortion:** Extortion by prison

staff is common in prisons around the world. In exchange for contraband or special treatment, inmates supplement guards' salaries with bribes. Powerful inmates in some facilities in India enjoy cellular phones, rich diets, and comfortable lodgings, while their less fortunate brethren live in squalor.

- **Lack of legal aid:** Lawyers in India are poorly paid and are often over-burdened with cases. Further, there is no monitoring mechanism to evaluate the quality of legal aid representation in most states.
- **Custodial deaths:** In 2015, a total of 1,584 prisoners died in jails. A large proportion of the deaths in custody were from natural and easily curable causes aggravated by poor prison conditions. There also have been allegations of custodial deaths due to torture.
- **Discrimination:** There is rampant corruption in the prison system and those who can afford to bribe, often enjoy luxuries in prison. On the other hand, socio-economically disadvantaged prisoners are deprived of basic human dignity.
- **Lack of reformatory approach**
- **Lack of Mental Health Professional**
- **Unsatisfactory living conditions**
- **Shortage of staff**
- **Torture and Sexual abuse**
- **Underpaid and unpaid labour**
- **Inadequate security measures and management**
- **Condition of women prisoners**

Measures taken by the Government

- **Modernization of Prisons scheme:** was launched in 2002-03. Various components included construction of new jails, repair and renovation of existing jails, improvement in sanitation and water supply etc.
- **E-Prisons Project:** The E-Prisons project aims to introduce efficiency in prison management through digitization. The availability of these details on an electronic platform will be useful to track the status of prisoners and smooth functioning of the prison system.
- **Model Prison Manual 2016:** The manual provides detailed information about the legal services (including free services) available to prison inmates.

- **National Legal Services Authority:** It has launched a web application recently to facilitate the under trial prisoners with free legal services and make the legal services system more transparent and useful.
- **Draft National Policy on Prison Reforms and Correctional Administration:** Its key provisions include:
 - ▶ Amending the Constitution to include principles of prison management and treatment of under trials under DPSP and including prisons in concurrent list.
 - ▶ Enactment of uniform and comprehensive law on matters related to prisons.
 - ▶ A department of Prisons and Correctional Services to be opened in each state
 - ▶ State shall endeavour to provide alternatives to prisons such as community service, forfeiture of property, payment of compensation to victims, public
 - ▶ State shall improve the living conditions in every prison and allied institution.

Major Committees related to Prison Reforms

- **All India Prison Reforms Committee, 1980 (Mulla Committee):** The Government of India set-up this Committee with the basic objective to review the laws, rules and regulations for protecting society and rehabilitating offenders. The Mulla Committee submitted its report in 1983.
- **Krishna Iyer Committee, 1987:** The Government of India set-up this Committee to undertake a study on the situation of women prisoners in India. It has recommended induction of more women in the police force in view of their special role in tackling women and child offenders.
- **Justice Amitava Roy panel, 2018:** Supreme Court's newly constituted Justice Amitava Roy panel will look into various matters including overcrowding in prisons and the issues concerning women prisoners.

CONCLUSION

Prisons' constitute important institutions which protect the society from criminals. To improve prison conditions does not mean that prison life should be made easy, it means, it should be made humane and sensible.

PRACTICE QUESTION

Q1: Briefly explain the concept of open prisons? Also, examine their significance in humanising criminal justice system.

Q2: Prisons Statistics of India (PSI) provides a grim picture of the prisons in India. In the backdrop of inhuman conditions in Indian prisons, discuss the need to relook at the prison system in India.

CAN AADHAR DATA BE SHARED FOR THE PURPOSE OF CRIMINAL LAW ENFORCEMENT?

CONTEXT:

Aadhar data cannot be the source of identification of any criminal case inquiry, according to the UIDAI.

- The Delhi High court has asked police to use the Aadhar details for matching the criminal fingerprints for identifying the culprit.

What is the plea of the Delhi High Court?

- Delhi Police approached Delhi High Court under Section 33(1) of the 'Aadhaar Act'.
- This provision of the above Act allows a judge of a High Court to order the disclosure of information on identity in certain cases.

About UIDAI

- The UIDAI, which issues the unique Aadhaar number to residents of India, is prohibited by law from sharing any core biometric information with police.
- UIDAI is the authority that collects demographic and biometric information of residents at site.

What is the present case is about?

- The police recovered 14 chance prints from the spot and footage from CCTV cameras in the area showing one of the suspects.
- The chance impressions and pictures did not match with any of the data already available with the police.
- Investigators now want to cast the net wider, using Aadhaar's biometric database

What Aadhar card contains?

- Aadhar is a 12-digit unique identity number that can be obtained voluntarily by the citizens of India and resident foreign nationals who have spent over 182 days in twelvemonths immediately preceding the date of application for enrolment, based on their biometric and demographic data.
- Name, Address, Date of birth, Gender, Mobile phone number, Email address is mentioned in Aadhar card of a person with his/her biometric details including

- ▶ The fingerprints
- ▶ iris scans
- ▶ The resident's photograph

Is Confidentiality of data guaranteed under the Aadhaar Act?

- The Aadhaar Act requires the UIDAI to ensure confidentiality and security of the identity information it collects.
- The UIDAI has also said that no Aadhaar data can be shared by any individual or entity with anyone without the consent of the resident or holder of the Aadhaar.
- Section 33, the provision under which Delhi Police has approached the court, allows the disclosure of only identification information including photograph or authentication records, but no core biometric information.
- Also, this provision states that the court cannot pass any order in such matter "without giving an opportunity of hearing to the UIDAI".
- On September 26th 2018, the Supreme Court delivered its judgment. It upheld the Aadhaar Act as constitutionally valid.

Judicial backing

- It ruled that the Act empowers disenfranchised sections of society by providing them better access to fundamental entitlements, such as State subsidies.
- The Court held that the Act was competently passed by Parliament, even though it was passed as a Money Bill.
- The Court held that the Act does not violate the fundamental rights guaranteed under Articles 14, 15, 19 and 21.

PRACTICE QUESTION

Q1: Discuss the key issues involved in sharing of Aadhar details for criminal investigation. Discuss how to strike balance between personal privacy and public security.

Q2: Discuss the evolving jurisprudence of data use and protection laws in India. What are some of the most contentious issues in this regard? Examine.

COOLING OFF PERIOD & ITS NEED IN CIVIL SERVICES

CONTEXT:

The cooling off period before joining post-retirement job is necessary for increasing the accountability and efficiency of the person after years of continuous services.

What is the cooling-off period?

- Cooling-off period is the length of time for which a retired civil servant is prohibited from accepting commercial employment.
- **Post-retirement commercial employment** for the three All India Services (IAS, Indian Police Service, and Indian Forest Service) is covered under the **AIS Death-cum-Benefits Rules**, and for the Central Civil Services under the **CCS (Pension) Rules**.
 - ▶ **Rule 26 of the AIS Death-cum-Benefits Rules** similarly restricts a pensioner from commercial employment for one year after retirement, except with government sanction.
 - ▶ **Rule 9 of the CCS (Pension) Rules** states that "if a pensioner who, immediately before his retirement was a member of Central Service Group 'A' wishes to accept any commercial employment before the expiry of one year from the date of his retirement, he shall obtain the previous sanction of the Government to such acceptance".

The cooling-off period was two years until January 2007, when the government reduced it to one year by an amendment.

- Non-compliance with these rules can lead to the government declaring that the employee "shall not be entitled to the whole or such part of the pension and for such period as may be specified".

What does "post-retirement commercial employment" mean?

- **The expression covers:**
 - ▶ Employment in any capacity including that of an agent, under a company, co-operative society, firm or individual engaged in trading or business but this does not include employment under a body corporate, wholly or substantially owned or controlled by the Central Government or a State Government
 - ▶ Setting up practice, either independently or as a partner of a firm, as adviser or consultant

in certain matters specified under the rules, including matters that are relatable to the pensioner's official knowledge or experience.

When does a government allow or turn down such requests from pensioners?

The CCS (Pension) Rules specify several factors for the government to consider while granting or refusing permission,

These include:

- Whether a "no-objection" for the proposed employment has been obtained from the cadre controlling authority and from the office where the officer retired;
- Whether the officer has been privy to sensitive or strategic information in the last three years of service that is directly related to the work of the organisation he proposes to join;
- Whether there is conflict of interest between the policies of the office he has held in the last three years and the interests/work of this organisation;
- Whether this organisation has been in conflict with or prejudicial to India's foreign relations, national security and domestic harmony; and
- Whether the organisation he proposes to join is undertaking any activity for intelligence gathering.

According to these rules, "**conflict of interest**" does not include normal economic competition with the government or its undertakings".

What about government servants joining politics after retirement?

- While in service, the Conduct Rules bar government servants from being associated with any political party or organisation, and from taking part in or assisting any political activity.
- There is no rule, however, to stop government servants from joining politics after retirement.

PRACTICE QUESTION

Q1: Post-retirement appointments in Judiciary undermine the doctrine of Separation of powers. Discuss.

Q2: Immediate joining of politics by civil servants after retirement raises the question of political patronage and non-partisanship. Critically Examine.

PLACES OF WORSHIP ACT

CONTEXT

The Supreme Court will hear an appeal challenging the order of a civil court in Varanasi, which allowed inspection, survey and videography at the Gyanvapi Mosque complex.

◎ BACKGROUND

- The Committee of Management of **Anjuman Intezamia Masjid**, has filed the appeal.
- The principal contention is that the order of the Varanasi court, which was upheld by Allahabad High Court in April is “clearly interdicted” by The Places of Worship (Special Provisions) Act, 1991.

◎ ANALYSIS:

What is the law is all about?

- The Places of Worship (Special Provisions) Act, 1991 is described as “An Act to prohibit conversion of any place of worship and to provide for the maintenance of the religious character of any place of worship as it existed on the 15th day of August, 1947, and for matters connected therewith or incidental thereto.”
 - ▶ **Section 3** bars the conversion, in full or part, of a place of worship of any religious denomination into a place of worship of a different religious denomination — or even a different segment of the same religious denomination.
 - ▶ **Section 4(1)** declares that the religious character of a place of worship “shall continue to be the same as it existed” on August 15, 1947.
 - ▶ **Section 4(2)** says any suit or legal proceeding with respect to the conversion of the religious character of any place of worship existing on August 15, 1947, pending before any court, shall abate — and no fresh suit or legal proceedings shall be instituted.

Certain Exemptions under the Act:

- **Section 5** stipulates that the Act shall not apply to the **Ramjanmabhoomi-Babri Masjid case**, and to any suit, appeal or proceeding relating to it.

- Besides the **Ayodhya dispute**, the Act also exempted:
 - ▶ Any place of worship which is an ancient and historical monument or an archaeological site covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958.

Why this law was required?

- The Act was introduced in the year 1991
- The Act was passed in the backdrop when Janmabhoomi movement had gained massive support.
- The main primary motive of the act to prevent rising incidents of communal unrest inside the territorial boundary.

Judicial Opinion on the Act

- While delivering the Ayodhya verdict, SC bench said that,
 - ▶ Legislative guarantee to preserve religious institutions, provides a confidence to every religious community, ensuring fraternity and peace in the society.
 - ▶ The Places of Worship imposes a non-derogable obligation towards protecting the secular feature of the constitution, one of the Basic Structure Doctrine.

◎ CONCLUSION:

Secularism is one of the Basic Structure Doctrine of our Indian Constitution. In order to protect the religious rights of the citizens, Parliament had enacted the Place of Worship (Special Provisions) Act in the 1991. During Ayodhya Verdict Supreme Court described the law as a legislative act to prohibit conversion of any place of worship and to provide for the maintenance of the religious character of any place of worship as it existed on the 15th day of August, 1947.

PRACTICE QUESTION

Q1: What are the provisions of The Places of Worship (Special Provisions) Act, 1991? Discuss its significance in the present day scenario.

Q2: Discuss the relevance of pluralism and secularism in multi-ethnic Indian society.

WHO ARE ASHA WORKERS, THE WOMEN HEALTHCARE VOLUNTEERS HONoured BY WHO?

CONTEXT:

The World Health Organisation has recognised the country's 10.4 lakh ASHA (Accredited Social Health Activist) workers as 'Global Health Leaders' for their efforts in connecting the community to the government's health programmes.

ASHA workers:

- ASHA workers are **volunteers** from within the community who are trained to provide information and aid people in accessing benefits of various healthcare schemes of the government.
- They act as a **bridge connecting marginalised communities with facilities such as primary health centres, sub-centres and district hospitals.**
- The role of these community health volunteers under the **National Rural Health Mission (NRHM) was first established in 2005.**
- ASHAs are primarily married, widowed, or divorced women between the ages of 25 and 45 years from within the community.
 - ▶ They must have good communication and leadership skills; should be literate with formal education up to Class 8, as per the programme guidelines.
- There are around 10.4 lakh ASHA workers across the country, with the largest workforces in states with high populations – Uttar Pradesh (1.63 lakh), Bihar (89,437), and Madhya Pradesh (77,531).
 - ▶ Goa is the only state with no such workers, as per the latest National Health Mission data available from 2019.

Duties of ASHA Workers:

- They **go door-to-door** in their designated areas creating awareness about basic nutrition, hygiene practices, and the health services available.

- They focus primarily on **ensuring that women undergo ante-natal check-up**, maintain nutrition during pregnancy, deliver at a healthcare facility, and provide post-birth training on breast-feeding and complementary nutrition of children.
- They also counsel **women about contraceptives** and sexually transmitted infections.
- ASHA workers are also tasked with ensuring and motivating **children to get immunised.**
- Other than mother and child care, ASHA workers also provide medicines daily to TB patients under directly observed treatment of the national programme.
- They are also tasked with screening for infections like malaria during the season.
- They also provide basic medicines and therapies to people under their jurisdiction such as oral rehydration solution, chloroquine for malaria, iron folic acid tablets to prevent anaemia, and contraceptive pills.

Debate over status

- There is a strong argument to grant permanence to some of these positions with a reasonable compensation as sustaining motivation.
- The incremental development of a local resident woman is an important factor in human resource engagement in community-linked sectors.
- This should apply to other field functionaries such as ANMs, GNMs, Public Health Nurses as well.
- It is equally important to ensure that compensation for performance is timely and adequate.

NEED FOR PARLIAMENTARY OVERSIGHT ON TREATY MAKING PROCESS OF INDIA

CONTEXT:

Treaty making practise followed in India were Parliamentary supervision is lacking has been a cause of concern.

◎ BACKGROUND:

- India is negotiating and signing several free trade agreements (FTAs) which are economically important for India and its economic growth.
- But the lack of discussions in the Parliament or its committees on these treaties has caused the reason to question the democratic deficit in India's treaty making process.

Constitutional Provisions with respect to India's treaty negotiations:

- In the Constitution, entry 14 of the Union list contains the following item — "entering into treaties and agreements with foreign countries and implementing of treaties, agreements and conventions with foreign countries".
- Article 246 of the Indian Constitution states that Parliament has the legislative competence on all matters given in the Union list.
- This therefore gives the Parliament power to legislate on treaties.
- The abovementioned power includes deciding on how India will ratify treaties and thus assume international law obligations.
- It also includes Parliament's competence to give effect to treaties within the domestic legal regime by enacting laws.
- Article 253 provides power to the Parliament to implement treaties by enacting domestic laws that relate to topics which are part of the state list.

What is the process of treaty making in India?

- It is pertinent to note that while Parliament in the last seven decades has passed many laws to implement international legal obligations imposed by different treaties, it is yet to enact a law laying down the processes that India needs to follow before assuming international treaty obligations.
- This legislative void has led to the Centre not just negotiating and signing but also ratifying international treaties and assuming international law obligations without the parliamentary supervision.
- Parliament though has been seen to exercise control over the executive's treaty-making power

at the stage of transforming a treaty into the domestic legal regime.

- But this leads to a scenario of ex-post parliamentary control over the executive.
- Parliament that this stage does not debate whether India should or should not accept the international obligations; it only deliberates on how the international law obligations, already accepted by the executive, should be implemented domestically.
- And even if the Parliament does not amend or make domestic laws to transform the treaty, it will continue to be bind India.
- This lack of parliamentary oversight has been flagged by the National Commission to Review the Working of the Constitution.
- But the course of India's treaty-making process has not changed.

What role legislature plays in treaty-making in other liberal democracies?

- When compared to other liberal democracies, the practise in India seems to be at variance.
- In the US, important treaties signed by the President have to be approved by the Senate.
- In Australia, the executive is required to table a "national interest analysis" of the treaty it wishes to sign in parliament, and then this is examined by a joint standing committee on treaties – a body composed of Australian parliamentarians.
- Also in Australian, the Parliament supervises the treaty-making process and acts as a check on the executive's power.
- In Canada, too, the executive tables the treaties in parliament.

◎ WAY FORWARD:

- Indian democracy needs to inculcate these healthy practices.
- Effective parliamentary supervision will increase the domestic acceptance and legitimacy of international treaties, especially economic agreements, which are often critiqued for imposing undue restraints on India's economic sovereignty.

PRACTICE QUESTION

Q1: Do you think the lack of Parliamentary control over the executive's power to sign international treaties erodes the constitutional mandate of parliamentary oversight over executive action? Give reasons for your answer.

Q2: Briefly explain the current mechanism of signing and rectifying international treaties in India. Also, discuss the potential benefits of augmenting Parliament's role in the treaty-making process?

APPROVAL FOR UPGRADATION OF 2G MOBILE SITES TO 4G AT SECURITY SITES IN LWE AREAS

CONTEXT:

The Union Cabinet has approved a Universal Service Obligation Fund (USOF) project for upgrading 2G mobile services to 4G at security sites in Left-Wing Extremism (LWE) hit areas.

◎ BACKGROUND

- The Naxal insurgency or Left-Wing Extremism (LWE) originated in a 1967 uprising in Naxalbari (West Bengal) under the leadership of **Charu Majumdar**, by the Communist Party of India (Marxist).
- They are the group of people who believe in the far-left radical communist's political theory derived from the teachings of the Chinese political leader Mao Zedong.
- The most prominent among the groups that have mushroomed in recent years are the People's War Group (PWG) and the Marxist Communist Centre (MCC).
- Left- Wing Extremism is concentrated in Eastern India, particularly an area known as **the Red Corridor** spread across the states of Chhattisgarh, Odisha, Jharkhand, Bihar, and Andhra Pradesh.

◎ ANALYSIS

How will upgradation to from 2G mobile sites to 4G help in tackling LWE?

- **Intelligence inputs:** The upgradation will fulfil the communication needs of the security personnel deployed in LWE affected areas. Thus, resulting in better and real-time intelligence sharing.
- **Connectivity:** It will enable better internet and data services in these areas fulfilling the government's goal of providing mobile connectivity in rural areas.
- **Service Delivery:** In addition, delivery of various e-governance services, banking services, tele-medicine, tele-education etc. through mobile broadband will be possible.

What is Left- Wing Extremism?

- LWE organizations are the groups that try to bring change through violent revolution. They are against democratic institutions and use violence to subvert the democratic processes at the ground level.

- These groups prevent the developmental processes in the least developed regions of the country and try to misguide the people by keeping them ignorant of current happenings.

What are the Left-wing affected states in India?

- As many as nine Indian states are bearing the brunt of Left- Wing Extremism.
- Of these, Andhra Pradesh, Bihar, Jharkhand, and Chhattisgarh are the worst-affected while Madhya Pradesh, Maharashtra, Orissa, Uttar Pradesh, and West Bengal are partially affected.
- Andhra Pradesh and Bihar remain the hotbed of Peoples' War Group and Marxist Communist Centre operations.

Trend in Left Wing Extremism

- The geographical influence of Maoists has contracted to only 41 districts in the country, which is a sharp reduction from 96 such districts in 10 States in 2010.
- LWE incidents have also reduced from 2,258 in 2009 to 349 incidents till August 2021.

What are the major causes behind the sustenance of Left Wing Extremism in India?

- **Tribal discontent:** The Forest (Conservation) Act, 1980 deprives tribals of the authority to use forest produce.
- **Displacement:** There has been a huge displacement of the tribal population in the LWE-affected states due to development projects, mining operations, and other reasons.
- **Poverty:** A huge chunk of the tribal population lives below the poverty line. They are also devoid of basic education and health facilities. Thus, Maoists are easily able to persuade them by offering to take up monetary incentives and a better future.
- **Absence Of Strong Technical Intelligence:** There is poor technical intelligence when it comes to tackling LWE For instance, some villages are not yet connected properly with any communication network which hinders action against LWE.

- **Poor Governance:** It is seen that even after the police take hold of a region, the administration fails to provide essential services to the people of that region.
- **Police Atrocities:** Tribals are sometimes harassed by the security forces in the mistaken belief that they may be Maoists. Such instances create hatred against security forces and boost recruitment in Maoist camps.
- **Ideological Boost:** Mao was able to oust the Chinese government and establish communism in China. To date, Communists are ruling the country, which gives a strong ideological boost to Maoist movements across the world.
- **Support from other actors:** They are connected to various internal and external insurgent groups that provide weapons, shelter, and finance. For instance, as per a few reports, CPI Maoists may have links with foreign Maoist organizations in the Philippines, Turkey, etc.

What are the impacts of rising Left-Wing Extremism in India?

- Hampering Democracy
- Infrastructural Damage
- Illegal Activities
- Undermines Credibility of Government
- Isolating Tribal Villages
- Security threats

Steps taken to contain Left Wing Extremism in India

- **Establishing LWE Division:** A dedicated left-wing extremism division was established in 2006 under the Ministry of Home Affairs. It aimed to effectively address the LWE insurgency
- **Using UAPA:** CPI (Maoist) Party is designated as a terrorist organization under the Unlawful Activities (Prevention) Act, 1967. This gives the forces greater power and autonomy to deal with Maoists.
- **National Policy and Action Plan:** to address the LWE problem has been put in place that envisages a multi-pronged strategy involving
- **Security-related measures:** Providing Central Armed Police Forces battalions, training, funds for modernization of State police forces, equipment & arms, sharing of intelligence, etc.
- **Security Related Expenditure (SRE) Scheme:** Under the scheme, the Central Government reimburses any expenditure related to LWE affected areas to the State Governments.
- **Developmental interventions:** construction of roads, strengthening of communications network, installation of mobile towers, improving

the network of banks, post offices, health and education facilities, etc.

- **Operation 'SAMADHAN':** is the Ministry of Home Affairs (MHA)'s initiative to deal with the Naxal problem. The acronym SAMADHAN stands for Smart leadership, Aggressive strategy, Motivation and training, Actionable Intelligence, Dashboard Based KPIs (key performance indicators) and KRAs (key result areas), harnessing technology, action plan for each theater, and No access to financing.
- **Greyhounds:** It was raised in 1989 as an elite anti-naxal force in Andhra Pradesh and Telangana.
- **Aspirational District Program:** Monitoring of Aspirational districts in 35 LWE affected districts.
- **Media Plan:** Activities like Tribal Youth Exchange programs are organized and radio jingles, documentaries, pamphlet distribution, etc. are being conducted.
- **Schemes & Policies:** Various schemes like Roshni have been used to improve skill development.
 - ▶ Universal Service Obligation Fund supported the Scheme of Mobile Services to increase mobile connectivity.
 - ▶ Effective implementation of provisions of PESA, 1996 on priority.
 - ▶ Surrender and Rehabilitation policy for Naxalites in affected areas.
 - ▶ Facilities of residential schools to children – (e.g. ChooloAasman, Pota Cabins, NanheParinde) as well as focus on sports infrastructure.
 - ▶ National Rural Employment Guarantee Programme (NREGA) is being implemented in 330 districts affected by Naxalism for demand-driven wage employment.

Issues in Government Measures:

- **Intelligence inputs:** The traditional method of gathering intelligence through police receivers placed on hills is not delivering optimum results. The recent April attack exposed this lacuna as Maoists deliberately gave false information over it.
- **Large troop operations:** It is believed that larger forces give better protection but the recent attack exposed their vulnerability. The 1000 personnel movement wasn't able to manoeuvre secretly and hence exposed themselves to the Maoists.
- **Trust Deficit:** The common masses don't trust the forces/administrative authorities due to varied cultures and external appearance. This automatically reduces the impact of tribal-friendly measures.
- **Lacunae in Protecting State Informers:** The people who give information to security forces are

often tortured and killed by Maoists. The state has not done enough to protect them.

- **Approach in Tackling:** More emphasis is placed on looking at LWE as a security problem. However, in reality, it is more of a socio-economic and political issue.
- **Lack of Conviction:** Some local politicians covertly support the conduct of Naxals that impairs the intensity of anti LWE operations.
- **Lack of coordination:** among the states and between State police and Central forces results in security voids which are exploited by the Naxals.

- **Lack of coordination** Inadequate use of Technology: The use of drones, ground sensors, smart guns, AI, etc. has been inadequate in Naxal areas.

◎ CONCLUSION

Though the country has made significant success in containing Naxalism, continued efforts and focus are needed in eliminating the menace. The strategy of the central and the state governments that use 'hard' and 'soft' approaches simultaneously will go a long way in solving this problem.

PRACTICE QUESTION

Q1: Technology intervention can not only help in tackling security challenges related to Left Wing Extremism (LWE) but can also help in socio-economic development of the affected regions. Examine.

Q2: Discuss the threat of Left Wing Extremism (LWE) to India. Briefly explain the Government of India's approach to counter the challenges posed by LWE.

ASSESSING THE STATE OF (UN)EMPLOYMENT IN INDIA

CONTEXT:

Latest data from the Centre for Monitoring Indian Economy (CMIE) shows that India's labour force participation rate (LFPR) has fallen to just 40% from an already low 47% in 2016.

◎ BACKGROUND

- **Pre-Covid-19 Era:** Even before COVID-19, the unemployment rate touched a peak in 2017-18 at 6.1%.
- **Post- Covid-19 Era:** Meanwhile, the rural unemployment rate rose to 8.35% in February 2022 after mild fluctuations around 5-7% since June 2021.

◎ ANALYSIS

What is Labour Force Participation Rate (LFPR)?

- According to the CMIE, the labour force consists of persons aged 15 years or older, who are either employed or unemployed and actively looking for a job.
- LFPR represents the "demand" for jobs in an economy.

Understanding Unemployment

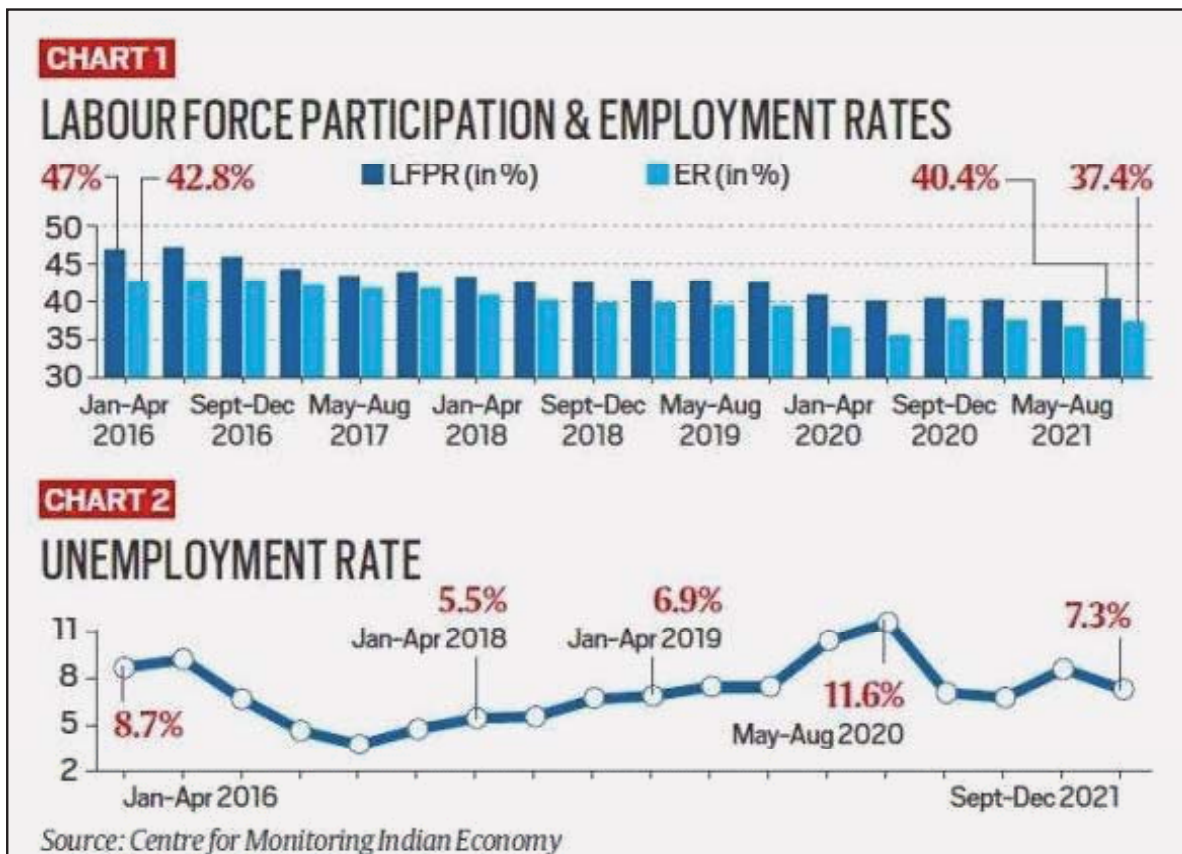
- Unemployment occurs when a person who is actively searching for employment is unable to find work.
- The most frequent measure of unemployment is the unemployment rate (UER), which is the number of unemployed people divided by the number of people in the labour force.

$$\text{Unemployment Rate} = \frac{\text{no. of unemployed persons}}{\text{Labor Force}}$$

includes employed and unemployed

LFPR Trend

- In India, the LFPR is not only lower than in the rest of the world but also falling.
- Global average of LFPR is around 60%. In India, it has been sliding over the last 10 years and



has shrunk from 47% in 2016 to just 40% as of December 2021.

- As per the Centre for Monitoring Indian Economy, the average urban unemployment rate remained higher at 9.04% in 2021 and above 7% in January-February 2022.
- Recent trend suggests that not only that more than half of India's population in the working-age group is deciding to sit out of the job market, but also that this proportion of people is increasing.

Status of women unemployment

- In urban areas unemployment among educated women was twice their male counterparts. The rate went up to 19.8% in 2017-18 from 10.3% in 2011-12.
- For rural educated women, unemployment stood at 17.3% in 2017-18 increasing sharply from 9.7 per cent in 2011-12.
- 'Gender Inclusion in Hiring in India' Report: 8.7% of working-age urban, educated women in the country are unemployed but only 4% of comparable men find themselves without a job.

Reasons to Low Female Labour Force Participation (FLFP):

- There is growing feminisation of agriculture due to socio-cultural restrictions, lack of alternate skills, and movement of men to cities away from agriculture.
- High Unpaid care and domestic work hours of Women in India (women do almost 10 times as much unpaid work as men).
- There are also social barriers such as restriction on women's mobility outside the house, flexibility in timings, proximity to their households, early age at marriage and child-birth etc.

What factors are responsible for high unemployment rate?

- **Boost in labour supply:** Size of labour supply in India is getting a boost from the rapid expansion of the working age population.
- **Rising job aspirations:** The nature of labour supply is changing too, with increasing enrolment of young adults for education and their rising job aspirations.
- **Reduced workforce in agriculture:** Workforce engaged in agriculture has been declining in India from 258 million in 2005 to 197 million in 2018. The decline has been partly due to stagnant public investment from 1990s and also driven by the pull

of new opportunities in towns and cities.

- **Manufacturing sector:** Size of manufacturing workforce in India declined by one million from 2012-2018. Micro and small firms received severe setbacks due to increase competition and rising cost.
- **Poor skilling of youth:** According to Periodic Labour force survey 2018 the pervasive joblessness was due to poor training of youth as only 7% of the people surveyed declared any formal or informal training.
- **Pandemic:** Increase in the country's unemployment rate can be mainly attributed to COVID at present. Many people lost their jobs and lockdowns led migrants to flee from urban centers to rural areas.
- **Prevalence of unorganised sector:** Absence of a good gauge of jobs in India because India is predominantly an unorganized-sector led economy that does not generate stable jobs.
- **Inadequate growth of infrastructure:** Inadequate growth of infrastructure and low investments in the manufacturing sector which led to decrease in employment in the secondary sector.
- **Lack of women empowerment:** Regressive social norms that deter women from taking or continuing employment.
-
- What are the impacts of unemployment in India?
- **Poverty:** Unemployment can give rise to the problem of poverty and deter the living conditions of the people.
- **Extra burden on government:** The government suffers an extra borrowing burden and rise in fiscal development because unemployment causes a decrease in the production and less consumption of goods and services by the people.
- **Less focus on capital:** Government spending is mainly diverted towards revenue expenditure leading to decrease in spending for capital expenditure.
- **Rise in antisocial elements:** Unemployed persons can easily be enticed by antisocial elements. This makes them lose faith in the democratic values of the country.
- **Increase in crime:** People unemployed for a long time may indulge in illegal and wrong activities for earning money which increases crime in the country.
- **Rise in socio-economic cost:** Unemployment affects the economy of the country as the workforce that could have been gainfully employed to generate resources actually gets dependent on the remaining working population, thus escalating socio-economic costs for the state.

How to create employment?

- **Increase in infrastructure spending:** Infrastructure spending by the Centre needs to go up. The spend needs to go up to create more jobs and push the money in the hands of the people so that consumption picks up.
- **Non-farm employment opportunities:** Rural jobs have started falling again. Non-farm employment opportunities in the villages should be focused either by encouraging private investment or pushing public spending.
- **Increase investment:** A large part of the solution to this lack of adequate jobs is in increasing investments.
- **Focus on demand size:** The investment climate needs to be business-friendly and government interventions must shift away from supply-side support to spurring demand.
- **Impetus to manufacturing sector:** Urgent need to create more jobs in manufacturing sector by

changing labour laws, giving special assistance to labour-intensive sector and **employment-linked production incentives**

- **Bridging the digital divide:** Additionally, special efforts need to be made to ensure minimal disruption in continued education and to bridge the digital divide.
- **Strengthening rural jobs scheme:** MGNREGA and rural jobs schemes have to be strengthened and their capacity increased, but only a portion of the workforce might be accommodated in it.

◎ CONCLUSION

Given the situation, urgent action is needed in multiple fronts including investment in human capital, increase expenditure on MGNREGA, revival of productive sectors and programmes to stimulate small entrepreneurship.

PRACTICE QUESTION

- Q1: According to the Centre for Monitoring Indian Economy (CMIE), India's labour force participation rate (LFPR) has fallen to just 40% from an already low 47% in 2016. What are the reasons for a low LFPR in India? Mention the measures taken by the Government of India to boost employment.**
- Q2: In the absence of proper skilling and employment opportunities, India's demographic dividend may soon turn into demographic disaster. Examine.**

INVIGORATING THE AYUSH INDUSTRY

CONTEXT:

AYUSH system of treatment, if integrated with the mainstream system of medicine, will give wider acceptance to traditional systems of India.

◎ BACKGROUND:

- India has a tradition of rich and diverse history of traditional medicines.
- In last one century though the rise of Allopathy had side-lined the use of Indian traditional medicine and health systems such as Ayurveda, Unani and Yoga.
- World as a whole and India in particular nevertheless is moving back to the systems of traditional medicines.
- It is therefore necessary that the government takes effective steps to make treatment from Indian Medicinal systems available to all.

What is the market value of traditional medicinal treatment today?

- In 2020, global market for herbal medicine was valued at \$657.5 billion.
- It is expected to grow exponentially in the coming times.
- Globally, in terms of value, the Chinese traditional medicine market leads the way.

Healthy China 2030 plan forecasts that the value of traditional Chinese medicine (TCM) market may reach \$737.9 billion within China and globally by 2030.

- In India, the **National Ayush Mission (NAM)** was launched in 2014 by the Department of Ayush, Ministry of Health and Family Welfare, to promote Ayush systems and address the needs of the sector in a comprehensive way.
- The Indian Ayush sector has seen the growth of 17% between 2014 and 2020.

About AYUSH

- AYUSH is the acronym of the medical systems that are being practiced in India such as **Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy**.
- These systems are based on definite medical philosophies and represent a way of healthy living with established concepts on prevention of diseases and promotion of health.
- The basic approach of all these systems on health,

disease and treatment are holistic.

What is National Ayush Mission?

● National AYUSH Mission

- ▶ India possess an unmatched heritage represented by its ancient systems of medicine like ASU&H which are a treasure house of knowledge for preventive and promotive healthcare.
- ▶ The positive features of the Indian systems of medicine namely their
 - diversity and flexibility
 - accessibility
 - affordability
 - a broad acceptance by a large section of the general public
 - comparatively lesser cost and growing economic value
 - have great potential to make them providers of healthcare that the large sections of people need
- Keeping this importance in mind, the government of India launched the **National AYUSH Mission (NAM)**.
 - ▶ The proposed Mission addresses the gaps in health services through supporting the efforts of State/UT Governments for providing AYUSH health services/education in the country, particularly in vulnerable and far-flung areas.
 - ▶ Special focus is given for specific needs of such areas and for allocation of higher resources in their Annual Plans.

What are the Objectives of National Ayush Mission?

- To provide cost effective AYUSH Services, with a universal access through upgrading AYUSH Hospitals and Dispensaries, co-location of AYUSH facilities at Primary Health Centres (PHCs), Community Health Centres (CHCs) and District Hospitals (DHs).
- To strengthen institutional capacity at the state level through upgrading AYUSH educational institutions, State Govt. ASU&H Pharmacies, Drug Testing Laboratories and ASU & H enforcement

mechanism.

- Support cultivation of medicinal plants by adopting Good Agricultural Practices (GAPs) so as to provide sustained supply of quality raw materials and support certification mechanism for quality standards, Good Agricultural/Collection/Storage Practices.
- Support setting up of clusters through convergence of cultivation, warehousing, value addition and marketing and development of infrastructure for entrepreneurs.

Challenges Faced by AYUSH System of Medicine in India:

- The courses offered to Ayurvedic practitioners' is below par at most of the institutes.
- There is a crunch human resource who could successfully pass on the knowledge of Indian Traditional Medicines to the next generation.
- The adequate utilisation of infrastructure in training institutes and hospitals of Ayush.
- Effectiveness of very few of Ayush treatments and medicines have been tested as per modern norms and hence lack of scientific backing obstructs their chance of getting accepted by people at large.
- Allopathy system of medicine is today the most accepted and wide spread route of getting treated.

Competition from Allopathy dwarfs the growth of Indian traditional system of medicines.

- There is a serious information lacuna amongst the general public about the Indian traditional medicine system.

How Traditional System of Medicine could be strengthened?

- Government of India's efforts to set up WHO-Global Centre for Traditional Medicine in Jamnagar, whose foundation stone was laid by PM Narendra Modi on April 19, 2022 is a big step forward in the direction of promoting and developing traditional systems of medicine.
- More study is necessary, especially in clinical trials, to know more about efficacy India Medicinal System.
- WHO has included traditional medicine in the 11th revision of the International Classification of Diseases by this will help in establishing reliable data on the use of traditional medicine.
- The organisational structure of State Medicinal Plant Boards(SMPBs), the body through which herb component of Ayush treatment is taken to the people, needs to be strengthened.

PRACTICE QUESTION

Q1: Do you agree that Integrating AYUSH System of Medicine into mainstream medical system will give it wider acceptance in the country? Substantiate your answer.

Q2: India's traditional medicine and way of life hold immense trade and brand potential. Discuss. Also, list various government initiatives to promote the Indian System of Medicines.

CSE REPORT FLAGS POOR STATE OF ORGANIC FERTILISER, BIOFERTILISER SECTOR IN INDIA

CONTEXT:

Drastic reduction in the production of organic fertilisers observed in India in 2020-21 when compared to the data of 2017-18.

What are organic fertilisers?

- Organic fertilizers comprise a variety of plant-derived materials that range from fresh or dried plant material to animal manures and litters to agricultural by-products.

What are the benefits of using organic fertilisers?

- **Helps improve the Soil Structure:**
 - ▶ Because of the organic matter present in organic fertilizer, soil structure is improved and as a result the soil's ability to hold onto water and nutrients increases.
- **Microbes Thrive**
 - ▶ Synthetic fertilizer consists of chemical molecules without carbon.
 - ▶ These molecules can sometimes be disruptive and are not accessible to microbes.
 - ▶ Organic fertilizers are rich in organic matter, which helps microbes thrive.
 - ▶ Organic fertilizer contains carbon as part of its chemical makeup; and it is the carbon, along with nitrogen, phosphorus and potassium that feeds microbes and enables them to make nutrients available for plants in a naturally occurring biological process.
- **Sustainable and Environmentally Friendly**
 - ▶ Synthetic fertilizers runoff into our waterways harming marine life and water quality.
 - ▶ Organic fertilizers do not run off as easily (if at all) and are associated with soil structure.
 - ▶ It has been observed that organic fertilizer also increases species biodiversity by 30% compared with synthetic fertilizer.
- **Reduces the use of Fertilizers and Pesticides**
 - ▶ Although organic fertilizer can be more costly than synthetic, it can reduce the need for pesticides and the overall nitrogen, phosphorus and potassium requirements.

- ▶ Because of the reductions, organic fertilizer can be cost neutral and sometimes a cost savings.
- ▶ Plant Damage Threat Avoided
- ▶ Some synthetic fertilizers can cause plant damage to leaves and roots. This is less likely with organic fertilizers.

What are the Disadvantages of Using Organic Fertilizers?

- **Not All Products Are Created Equally**
 - ▶ Not all products are created equally and many organic products produce inconsistent results.
- **Nutrient Levels Are Low**
 - ▶ The level of nutrients present in organic fertilizer is often low.
 - ▶ In addition, the nutrients are usually complexed in organic chemical structure; this means using organic fertilizer may not produce the pop of colour seen with a chemical fertilizer.
- **DIY Compost is a Complicated Procedure**
 - ▶ Creating an organic compost is a messy and complicated process that often leads to an inconsistent product and end-result.
- **Production of Organic Fertilisers in India:**
 - ▶ Making compost out of agriculture, animal and plant waste has been practised in India for a long period of time.
 - ▶ Today though we are seeing a new era of organic fertilizers which are made using modern technologies and machineries.
 - ▶ India, at this point of time, is the biggest producer of organic fertilizer in the world. Though the production of the same in the last few years has gone down drastically.
 - ▶ Karnataka alone produces 94% of organic fertilisers in India.

What the reasons for reduction of organic fertilizers in India?

- Structural shift from inorganic to organic fertilizers, from the farmers side remains the biggest hurdle.

- Green Revolution and spread of inorganic fertilizers
- Inadequate resource allocation to agricultural sector.
- Faulty and opaque tender process
- Low competitive market, leading to low standard product availability
- Lack of farmers' confidence due to low quality input and insufficient yield.

Other concerns

There are concerns regarding the

- poor quality of biofertiliser and organic fertiliser products
- poor fertiliser control order (FCO) implementation by state agriculture departments
- variation in laboratory test results between state and centre-owned laboratories
- existence of fake companies
- Poor quality control infrastructure

PRACTICE QUESTION

Q1: Organic food export can transform Indian economy. Discuss the challenges faced by organic farming in India. What policy measures are needed to overcome them?

Q2: Sri Lanka's experiment with Organic Farming has raised questions on its efficacy. In light of this statement, discuss the future of organic farming in India.

ALL IS NOT WELL WITH GIG ECONOMY

CONTEXT

As the gig economy is expanding, there are rising concern regarding the status of gig workers under labour laws, lack of social security, ambiguity of rights, and vulnerability to fluctuation in demand.

◎ BACKGROUND

- As the pandemic disrupted the normal functioning of business leading to loss of jobs and income, the spread of the gig economy to provide some support is a welcome move.
- With the boom in the gig market, concerns related to merge income labour rights and status of employment is becoming a debatable issue.

- The central and state governments are required under **section 109** of the law to “design and notify, from time to time, suitable assistance plans for unorganised workers”.
- The national and state governments will predominantly fund social security measures, with the aggregator contributing a modest amount (1-2% of their yearly turnover).

◎ ANALYSIS

What is Gig Economy?

- A gig economy is a free market system in which temporary positions are common and organizations hire independent workers for short-term commitments.
- Non-traditional or gig work consists of income-earning activities outside of traditional, long-term employer-employee relationships.

Scope and prevalence of the gig economy:

- India constitutes about 40% of freelance jobs offered globally.
- According to a report on the future of jobs in India by FICCI, EY, and NASSCOM, with a 24% share, India is leading in terms of online labour market globally.
- Gig hubs in India:** Prevalence of gig economy is more in metro cities; with Delhi NCR at 43 percent emerging as the biggest hub, followed by Mumbai at 19 percent and Bangalore at 18 percent.
- Use of gig work platforms has grown by more than 30% in emerging economies.
- Only 20% of freelancers would prefer full-time employment.
- 40% of companies expect that gig workers will become an increasing part of their workforce.

Social Security Code, 2020

- The SS Code, for the first time, defines ‘gig workers’ and ‘platform workers’.
- In this code, gig workers are classified as unorganised sector workers, although the security coverage is unclear.

Features of the gig economy

- Based on temporary hiring:** In a gig economy, temporary, flexible jobs are commonplace and companies tend toward hiring independent contractors and freelancers instead of full-time employees.
- Technology dependent:** Technology facilitates work from home and Internet offers workers connectivity with employers and customers.
- Confined more to urban areas:** Gig economy is highly technologically dependent and as cities tend to have the most highly developed services, they are the most entrenched in the gig economy.
- Attracts young workers:** Gig economy attracts millennials because it offers them alternative work arrangements. It provides them with what they value:
 - flexible working hours
 - ability to work from home
 - a variety of experiences
 - a sense of excitement to be working on different projects with varied companies
- Wide range:** The gig economy is prevalent in wide-ranging sectors/segments; Finance, agriculture and forestry, transportation, education, healthcare and construction.
- Change of traditional roles:** Workers are taking upon themselves a much larger share of the market risk of economic ups and downs, changing trends, and fickle consumer preferences, which were traditionally borne by capitalist business owners who employed wage and salaried workers.

Advantages of the Gig Economy	Disadvantages of the Gig Economy
<ul style="list-style-type: none"> • Cater to immediate demand • Cheaper and more efficient • Wider choice for employers • Offers specific expertise • Wider choice for employees • Youth economic productivity 	<ul style="list-style-type: none"> • Erosion of traditional economic relationships • Discourage Investment in Human Resources • Crowding out traditional workers • Disrupted work-life balance for gig workers • No employment-related rights

Gig Economy and Women

Advantages	Disadvantages
<ul style="list-style-type: none"> • Balancing Home and Work • Safe Work Environment for Women • Addressing Migration issue • On-Demand Work • Earning Extra Income 	<ul style="list-style-type: none"> • Gender segregation of work • Wage Disparities • Dual burden • Digital Divide

How to improve the condition of Gig Workers?

- **Empowering Gig Workers:** Forming an umbrella union of the gig workers will provide them with collective bargaining power and information symmetry to hold a better footing against the platforms.
- **Expanding Coverage of schemes:** There is an urgent need to clearly define the social security benefits of gig workers.
- **Reducing Dependency on aggregate platforms:** Dedicated loan scheme for gig workers can empower them to become independent entrepreneurs and end their dependency on the platform aggregator companies.

◎ CONCLUSION

- The success of the gig economy will be dependent on how policymakers, futurists, industry, and governments come together to develop an enabling framework and labour laws that allow it to thrive and sustain. Also, companies will have to re-evaluate their current practices to accommodate gig workers.

PRACTICE QUESTION

Q1: Gig economy is becoming the new normal. Discuss the key drivers of the gig economy.

Q2: What are the advantages and challenges of the gig economy over traditional economy? Also, suggest measures needed to ensure welfare of gig workers.

WHAT IS THE SIGNIFICANCE OF SEMICONDUCTING DEVICES IN INDIAN ECONOMY

CONTEXT

Recently 1st Semicon India 2022 Conference has been unveiled the Ministry of Electronics and Information Technology as a component of India's Semiconductor Mission.

- The conference was organised to make India a leader in electronics production, semiconductor layout, production and innovation.

BACKGROUND

- The Semicon India Programme was cleared by the Union Cabinet in December 2021, with a financial outlay of INR 76,000 crore for the development of semiconductors and display manufacturing ecosystems over the next six years.
- A specialised and dedicated "India Semiconductor Mission (ISM)" has been set up within Digital India Corporation to drive India's strategies for developing semiconductors and display ecosystem.
- The scheme has been aimed at making India a global electronics hub as a shortage of microchips hurts industrial production.

ANALYSIS

What India needs a Semiconductor Mission?

- India Semiconductor Mission (ISM) is a specialised and independent business division within the Digital India Corporation (a not for profit company set up by the Ministry of Electronics and Information Technology).
- The aim of the mission is to build a vibrant semiconductor and display ecosystem to enable India's emergence as a global hub for electronics manufacturing and design.
- The mission is authorised to negotiate with the applicants under the semiconductor fab scheme and the display fab scheme.
- This mission has been given the autonomy to decide the appropriate technology mix, applications, node generation, capacity and propose the structure and quantum of fiscal support for the selected applicants.

What are semiconductors?

- Semiconductors are crystalline or amorphous solids that have electrical conductivity opposite at temperatures to those of metal, higher electrical resistance than typical resistant materials, but still of much lower resistance than insulators.

- There are two basic groups or classifications that can be used to define the different semiconductor types:
 - ▶ Intrinsic material: An intrinsic type of semiconductor material made to be very pure chemically.
 - ▶ Extrinsic material: Extrinsic types of semiconductor are those where a small amount of impurity has been added to the basic intrinsic material.

Need of Promoting Indigenous Semiconductor Industry

- **Employment:** Promotion of semiconductor industry will create highly skilled employment opportunities and help India harness its demographic dividend.
- **Reducing Imports Dependency:** As the demand increases, electronics imports are expected to overtake crude oil as India's largest import commodity.
- **Disruption in Global Supply Chains:** Pandemic induced lockdown and restriction followed by Russia-Ukraine war has led to the shortage of semiconducting devices. It has a cascading effect on other industries as well leading to slowdown in many sectors of the economy.
- **Promoting Make in India:** Indigenous manufacturing of semiconductor devices will give push to the Make in India program and will help in attracting investment.
- **Atmanirbhar Bharat:** Local semiconductor manufacturing will pave the way for India's technological leadership in areas of strategic importance and economic self-reliance.
- **National Security:** India imports most of electronic components used in its communication and critical systems. There is a risk of programming backdoors in the manufacturing process and thus hampering national security and sovereignty of India.
- **Capital intensive:** Semiconductor manufacturing is a highly capital-intensive industry which needs developed ecosystem to thrive.

- **Shortage of process engineers:** Despite having large talent pool of chip designers, India lacks process engineers who can run a front-end chip factory.
- **Dominance of Few Countries:** Taiwan and South Korea dominated the semiconductor manufacturing space. 75% of the semiconductor manufacturing capacity is concentrated in East Asia and China. Any disruption in supply chain due to conflict or restriction poses many challenges for the importing country.
- **Pursuing Western Companies:** India needs to attract foreign investment to built-up chip fab capacity by overcoming the intense competition from other countries.
- **Focus on back-end of manufacturing:** Semiconductor foundries accounts for 65% of industry capital expenditure but only 25% of the value addition. Therefore, to lower the risks of investment, India should especially look at back-end of manufacturing such as assembly, packaging and testing. Once it stabilises and an ecosystem develops, front-end of manufacturing will follow.
- **Cooperation of states:** Semiconductor industry requires stable power, large quantities of pure water and land. These are state subjects, and state governments' proactive cooperation is needed to create the right climate for easy implementation of semiconductor projects.
- **Transport logistics:** Roads, railway and air connectivity to the site are also critical.

Required measures

- **Supporting startups:** India has a huge talent of entrepreneurial engineers and **hand-holding of Indian engineers by the government** can produce large payoffs.
- **Budgetary support:** Semiconductor manufacturing is a capital intensive process and will require government's support to reach its full potential.

◎ CONCLUSION

Semiconductors are foundation for the next Industrial Revolution. While, India ramps up its semiconductor manufacturing capabilities, need of the hour is to look for trusted partners and diversify supply chains to meet the growing need.

PRACTICE QUESTION

- Q1: What is the significance of semiconducting devices in the Indian economy? Discuss the challenges associated with the domestic manufacturing of semiconductors.**
- Q2: Semiconductors are conceived as the harbinger of modern technology. Discuss Government of India's policies and incentives promoting the semiconductor industry.**

WORLD ECONOMIC FORUM

CONTEXT:

Nearly 100 CEOs and over a dozen government leaders are attending the rare springtime annual meeting of World Economic Forum (WEF). Indian contingent are attending the meeting to share the story of fighting pandemic and attract more investments.

◎ BACKGROUND:

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

◎ ANALYSIS:

World economic forum and its role:

- The world economic forum is the international organization for public-private cooperation.
- The forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industrial agendas.
- The forum strives in all its efforts to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance. Moral and intellectual integrity is the prime objective of its every actions.
- Activities of the forum are shaped by a unique institutional culture founded on the stakeholder theory, which asserts that an organization is accountable to all parts of society.
- The institution carefully blends and balances the best of many kinds of organizations, from

both public and private sectors, international organizations and academic institutions.

Theme and key agendas of 2022

• Working together and restoring trust:

- ▶ Under the theme, 'working together and restoring trust', the annual meeting of world economic forum is taking place at the most consequential geopolitical and geo-economic moment of the past three decades and against the backdrop of a once-in-a-century pandemic.

Other highlighted agendas:

- ▶ Climate and nature
- ▶ Fairer economies
- ▶ Tech and innovation
- ▶ Jobs and skills
- ▶ Better business
- ▶ Health and health care
- ▶ Global cooperation
- ▶ Society and equity
- Other key dimensions which will dominate the five-day events are crypto currencies, role of multilateralism and rising costs across the world.

Key highlights of the meeting:

- Addressing urgent humanitarian and security challenges as they simultaneously advance long-standing economic, environmental and societal priorities – all while reinforcing the foundations of a stable global system.
- Clarity of vision and unity of purpose will be crucial for making progress against the unprecedented complexity of a multipolar world.
- The focus is on setting strategies for impact, building new frontiers, creating viable future scenarios and providing ambitious solutions to the world's biggest issues.
- **Pandemic response:** While confronting the ongoing pandemic, vaccine and vaccine equity gained the significant highlight to end the pandemic.

- **Economic recovery:** The economy was also front and centre during discussions at Davos agenda 2022, with world leaders commenting on the impact of the pandemic on economies and the ongoing efforts toward recovery.
- **Climate action:** building on the momentum from cop26, speakers at 2022 Davos agenda argued for the need for climate action in no uncertain terms.
- **Technological innovation:** The covid-19 pandemic accelerated many of the digital transformations of the fourth industrial revolution across industries, a trend that will continue in the year ahead. At Davos agenda 2022, has underlined the key role of technology and were optimistic about the potential for tech to help address global problems.
- **Global collaboration:** underpinning all the conversations at the Davos agenda 2022 was the power of global collaboration, which involves stakeholders from the public, private and civil societies.

India and world economic forum:

- This year, with the world economic forum's 50th anniversary India is also celebrating its 35 years of collaboration with the forum, providing an opportunity for India to showcase its unified presence.
- World economic forum could provide a potential platform to project India as an important and relevant stakeholder in shaping global initiative. Also as an attractive destination in view of its robust

economic growth and stable macroeconomic indicators.

- To mark 75 years of independence, 'Azaadika Amrit Mahotsav', DPIIT has taken initiative to have a consolidated presence at WEF, 2022.

Reports by world economic forum and India's status:

- Energy transition index: India ranked at 87th position out of 110 countries.
- Global competitiveness report: India is standing at 68th position in global competitiveness report, 2019.
- Global gender gap report: India ranked at 140th place out 156 countries
- Global risk report: India has ranked 7th position
- Global travel and tourism report: India has been placed at 54th place.

◎ CONCLUSION:

The philosophy of collective action has endured for more than 50 years and it has never been more needed than now. The meeting is the starting point for a new era of global responsibility and cooperation. Over the past two years, the WEF has strengthened its impact initiatives, which deal with issues ranging from COVID-19 and climate change to education as well as technology and energy governance.

PRACTICE QUESTION

Q1: Discuss the key constraints in attracting foreign investors to India? What are the recent initiatives taken by the government to increase the inflow of foreign investment in the country? Examine.

Q2: FDI is crucial for India to realise its goal of \$5 trillion economy but it is not the sole solution for its socio-economic issues. Comment.

AIP: THE NAVAL TECHNOLOGY THAT INDIA CRAVES FOR

CONTEXT:

One of five shortlisted Original Equipment Manufacturers (OEM) called Naval Group, earlier known as DCNS, for the Navy's P-75 India (P-75I) project to build six conventional submarines within the country, announced it would not bid for the project.

What is the P-75I project?

- In June 1999, the Cabinet Committee on Security approved a 30-year plan for the Navy to indigenously build and induct 24 submarines by 2030.
- In the first phase, two lines of production were to be established — the first, P-75; the second, P-75I. Both lines producing six submarines each.
- The contract for P-75 was signed in 2005 with the Naval Group, then known as DCNS, in partnership with Mazagon Dock Shipbuilders Ltd (MDL).
- The first Kalvari Class (Scorpene Class) submarine under the project was commissioned in December 2017.
- Another five submarines have been built since; the final one, Vagsheer, was launched last month, and will be commissioned by late 2023.
- While P-75 deliveries were delayed, P-75I has seen long delays even before it has kicked off.
- The first Request for Information was issued in 2008, then again in 2010, but the RFP was issued only in July 2021.
- This will be India's first project under the Strategic Partnership Model — the government will give the contract to an Indian Strategic Partner (SP), which will partner with a foreign OEM to build AIP-powered submarines in the country.
- MDL and Larsen and Toubro are the two selected SP; the five selected OEMs are:
 - ▶ Naval Group (France)
 - ▶ ThyssenKrupp Marine Systems (Germany)
 - ▶ ROE (Russia)
 - ▶ Daewoo Shipbuilding and Marine Engineering (South Korea)
 - ▶ Navantia (Spain)

What is the status of the project?

- The final bids — one each by the SP in partnership with an OEM — are yet to take place.
- The project faces hurdles as the Naval Group has already announced it is pulling out, and sources said the Russian and Spanish companies might also not proceed with their bids.

- Among the concerns, as Naval Group said, is the requirement to demonstrate a sea-proven fuel cell AIP.
- While some manufacturers may have the technology, it may not have been proven at sea yet.
- Some analysts believe that while the RFP was clear about these conditions, it is possible that the OEMs were expecting certain concessions in the requirements eventually.
- Another problem for the OEMs is with respect to the transfer of technology, which is built into the process under the SP model.
- It is believed that the OEMs are unwilling to share all their expertise, especially the niche technologies that they have built.

Why does the Navy want AIP subs?

- Issuing the RFP last year, the government said it envisages indigenous construction of six modern conventional submarines with contemporary equipment, weapons & sensors including Fuel-Cell based AIP (Air Independent Propulsion Plant), advanced torpedoes, modern missiles and state of the art countermeasure systems.
- AIP is important for Indian Navy it has a force multiplier effect on lethality of a diesel electric submarine as it enhances the submerged endurance of the boat several folds.
- Fuel cell-based AIP has merits in performance compared to other technologies.
- AIP technology therefore allows a conventional submarine to remain submerged for much longer than ordinary diesel-electric submarines.
- All conventional submarines have to surface to run their generators that recharge the batteries that allow the boat to function under water.
- However, the more frequently a submarine surfaces, the higher the chances of it being detected. AIP allows a submarine to remain submerged for more than a fortnight, compared to two to three days for diesel-electric boats.
- While the six P-75 submarines are diesel-electric, they can be fitted with AIP technology later in their lives.

- India has been working to develop AIP technology indigenously as well.

What submarines does India have now?

- India has 16 conventional diesel-electric submarines, which are classified as SSKs.
- After the last two Kalvari Class subs are commissioned under P-75, this number will go up to 18.
- India also has two nuclear ballistic submarines, classified SSBN.
- Of the 16 SSKs, four are of Shishumar Class, which were bought and then built in India in collaboration with the Germans starting 1980s:

- ▶ 8 are Kilo Class or Sindhughosh Class submarines bought from Russia and
- ▶ 4 are Kalvari Class built in India at MDL.

What type of AIP mechanism is India wanting to have in its submarine?

- There are different types of AIP mechanisms available.
- India is looking for under the P-75I project is AIP based on fuel cells.
- These cells convert chemical energy into electrical energy, recharging the batteries of the submarine.

PRACTICE QUESTION

Q1: Explain how Air Independent Propulsion works? Discuss the significance of the technology for Indian Naval power?

Q2: India with a coastline of almost 7500 km is vulnerable to various threats. Analyse the issues of maritime security and measure needed to address them.

OPEN SOURCE TECHNOLOGY

CONTEXT

In the process of democratization of governance structure, new emerging technologies play a vital role.

- Digital public goods (DPGs) and digital public infrastructure (DPI) are prime examples of technological investments into 'open' tech that can help governments more quickly develop solutions to big and urgent challenges.

◎ WHAT IS MEANT BY 'OPENNESS' IN TECHNOLOGY?

- Openness of technology refers to free availability of the source code to every user or developer for usage, modification and redistribution.
- Both Digital public goods (DPGs) and digital public infrastructure (DPI) are anchored in the idea of "openness" and open-source, i.e. each problem has to be solved only once.
- The solution is made freely and widely available to anyone who wishes to use it, modify it or built upon it.
- These are accessible and available to anyone who wishes to use them, modify them or build upon it.

Digital public goods (DPGs)

- DPGs are "open source software, open data, open AI models, open standards and open content that adhere to privacy and other applicable laws and best practices, do no harm and help attain the SDGs,"
 - ▶ One example of a DPG is DIVOC, a programme that has been customized by governments to generate over 1 billion secure and verifiable vaccination certificates in India, Sri Lanka, Philippines, Jamaica and Indonesia.

Digital public infrastructure (DPI)

- DPIs refer to societal scale digital systems with functions essential for public and private service delivery, including payment systems and data exchanges.
- One example of a DPI is OpenG2P, which digitized cash transfers and was built during the West Africa Ebola crisis.

What are the benefits of open source technology that India can derive?

- Free availability and accessibility
- A thriving community of developers to build suitable target-oriented software

- Secure software
- Potential to democratize the governance structure of the nation
- More accountable and responsive governance.
- Networked health care
- Quality education
- potential capacity to be used in the digital India mission and make the payment system cashless

Challenges in deployment and implementation

- Constraints in technical capability
- a persistent digital divide
- lack of fiscal space
- unintended exclusions
- Risks to data and digital rights of citizens

What are the major steps that need to be taken to implement the technological reform?

- **Moving from words to action:** To implement the process of Open source technology, accessible and affordable internet service plays a crucial role. The policy framers at the national and sub-national levels need to bridge the gap of the digital divide and penetrate the use of open source technology.
- **Building deeper country capacity:** Policy framers should focus on building up the infrastructure and frameworks for secure cyberspace to support the growth and penetration of open source technology and software.
- **Leave no one behind:** The objective of the implementation plan needs to be inclusive and democratic, which involves people's participation and development for all.

◎ CONCLUSION:

Open source approaches to technologies can help the government more efficiently develop a tailored solution to big and urgent challenges. Implementing

GPGs to leverage DPIs can provide crucial interventions for emergencies and development. DPGs and DPIs when combined with community engagement can make the governance structure more transparent

and accountable. Some major challenges lie ahead in the implementation process of the technology which needs to be catered to achieve the Sustainable Development Goals' 2030.

PRACTICE QUESTION

- Q1: Open Digital Ecosystems (ODEs) can democratize access to government systems and enable collaborative citizen-centric services. Comment**
- Q2: Examine the role of open technology in accelerating the achievement of UN Sustainable Development Goals.**

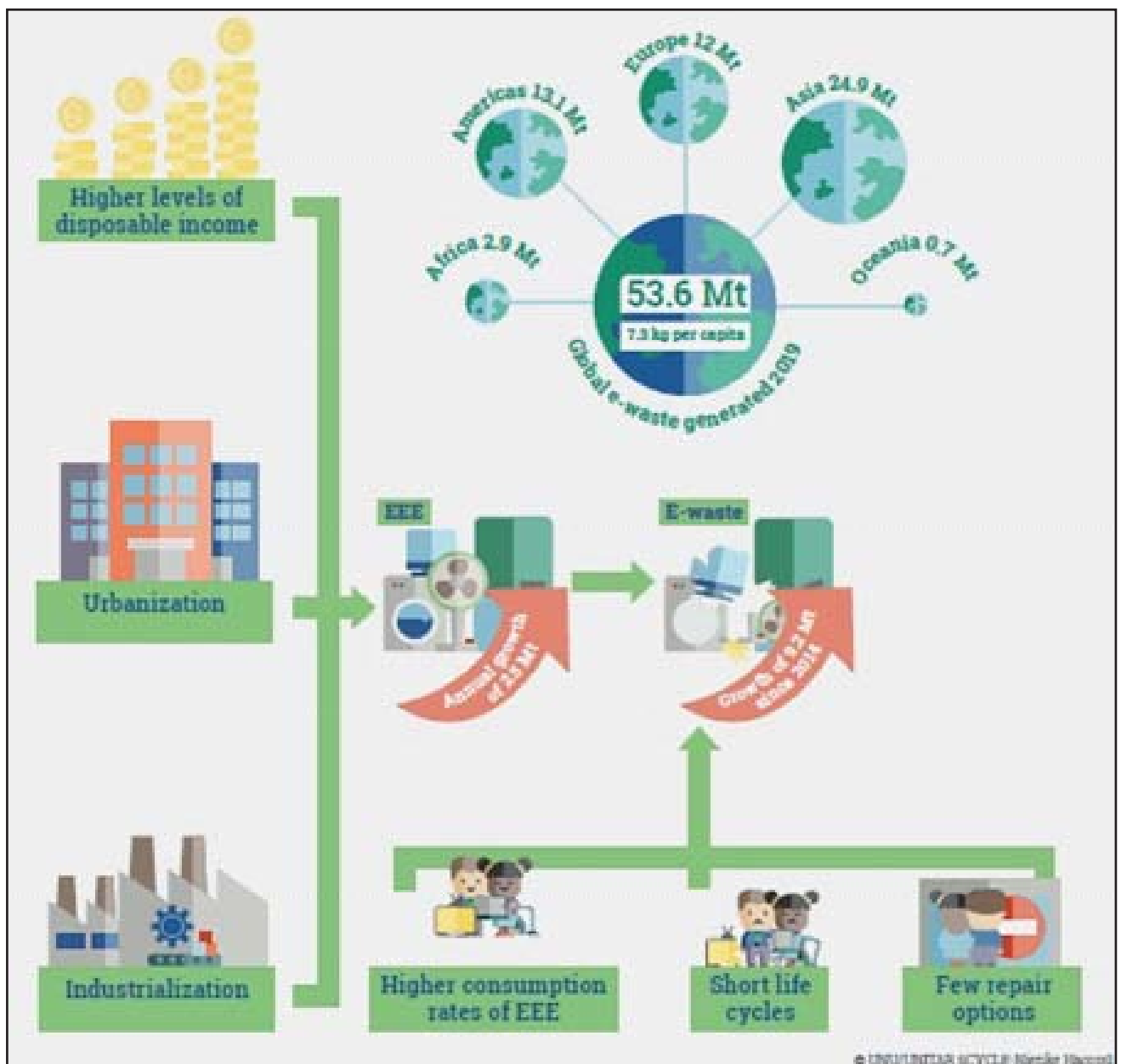
MINE E-WASTE, NOT THE EARTH

CONTEXT

According to scientists, the recycling of e-waste must urgently be ramped up because mining the Earth for precious metals to make new gadgets is unsustainable.

What is E-Waste?

- E-Waste is short for Electronic-Waste and the term is used to describe old, end-of-life or discarded electronic appliances. It includes their components, consumables, parts and spares.
- It is categorised into 21 types under two broad categories:
 - ▶ Information technology and communication equipment.
 - ▶ Consumer electrical and electronics.
- Laws to manage e-waste have been in place in India since 2011, mandating that only authorised dismantlers and recyclers collect e-waste. E-waste (Management) Rules, 2016 was enacted in 2017.
- India's first e-waste clinic for segregating, processing and disposal of waste from household and commercial units has been set-up in Bhopal, Madhya Pradesh.



Recent estimates:

- The “mountain” of waste electronic and electrical equipment discarded in 2021 will weigh more than 57 million tonnes.
- This is heavier than the Great Wall of China - the planet’s heaviest artificial object.
- Globally, the amount of so called e-waste generation is growing by two million tonnes every year.
- It is estimated that less than 20% is collected and recycled.

Growing demand:

- Geopolitical unrest, including the war in Ukraine, has caused huge spikes in the price of materials like nickel, a key element in electric vehicle batteries.
- Volatility in the market for elements is causing “chaos in supply chains” that enables the production of electronics.
- Combined with the surge in demand, this caused the price of **lithium** - another important component in battery technology - to increase by almost 500% between 2021 and 2022.

Elements in smartphones that could run out in the next century:

- **Gallium:** Used in medical thermometers, LEDs, solar panels, telescopes and has possible anti-cancer properties
- **Arsenic:** Used in fireworks, as a wood preserver
- **Silver:** Used in mirrors, reactive lenses that darken in sunlight, antibacterial clothing and gloves for use with touch-screens
- **Indium:** Used in transistors, microchips, fire-sprinkler systems, as a coating for ball-bearings in Formula One cars and solar panels
- **Yttrium:** Used in white LED lights, camera lenses and can be used to treat some cancers
- **Tantalum:** Used in surgical implants, electrodes for neon lights, turbine blades, rocket nozzles and nose caps for supersonic aircraft, hearing aids and pacemakers

Doing the numbers

- A record 53.6 million metric tons of electronic waste were generated worldwide in 2019, up 21% in just five years.
- E-waste is also predicted to reach 74 million metric tons by 2030, almost doubling its actual figures in 15 years.
- This makes e-waste the fastest-growing domestic waste stream on a global scale.

PRACTICE QUESTION

Q1: E-waste is a serious threat accompanying the digital revolution in India. Do you agree? What are the current provisions to address the challenge of e-waste in India? Critically review.

Q2: Analyse the reasons behind India’s problem of e-waste and provide an account for the ineffectiveness of the rules.

NHRC FLAGS POLLUTION EFFECT ON HUMAN RIGHTS

CONTEXT

The National Human Rights Commission (NHRC) had issued an advisory to the Centre and State Governments on preventing, minimising and mitigating the impacts of environmental pollution and degradation on human rights.

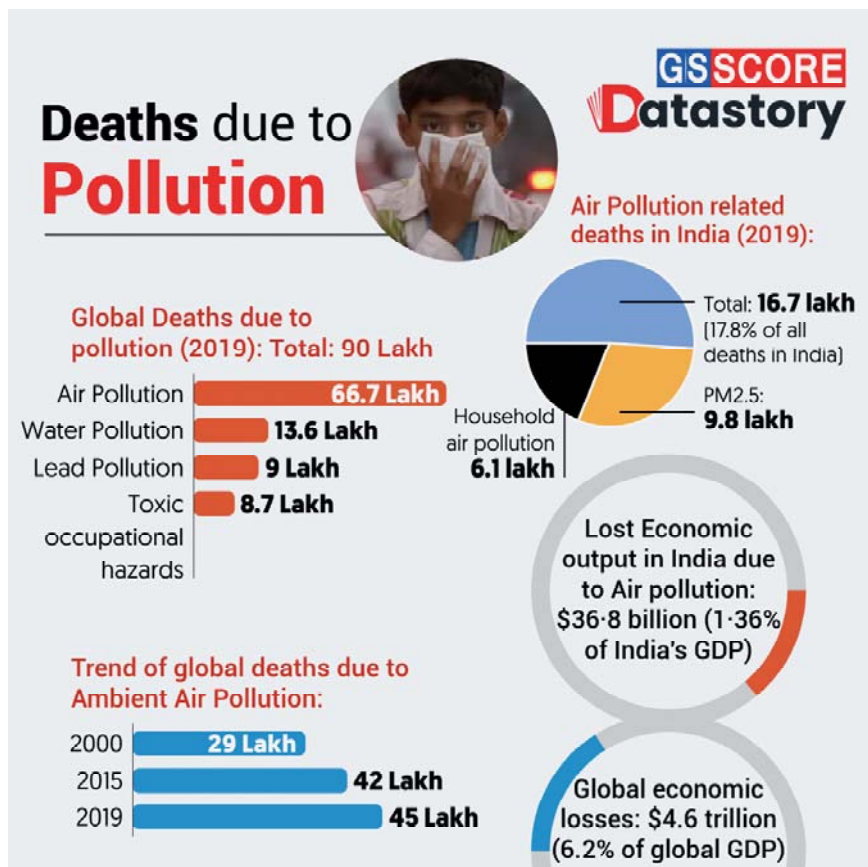
◎ BACKGROUND

- A latest Lancet Commission report on Pollution and Health has highlighted the impact of increasing pollution on human health in India.
- Air pollution was responsible for 16.7 lakh deaths in India in 2019, or 17.8% of all deaths in the country that year.
- This is the largest number of air-pollution-related deaths of any country.
- 9.8 lakh were caused by PM2.5 pollution, and another 6.1 lakh by household air pollution.
- **Pollution sources associated with extreme poverty (such as indoor air pollution and water pollution):** This number has reduced; but, this reduction is offset by increased deaths attributable to industrial pollution (such as ambient air pollution and chemical pollution).

- **Worst affected places:** Air pollution is most severe in the Indo-Gangetic Plain. This area contains New Delhi and many of the most polluted cities.
- **Causes:** Burning of biomass in households was the single largest cause of air pollution deaths in India, followed by coal combustion and crop burning.
- **Lead:** 27.5 crore children are estimated to have blood lead concentrations that exceed 5 µg/dL.
- Economic losses due to modern forms of pollution have increased as a proportion of GDP between 2000 and 2019 in India. It amounts to 1 percent of GDP.

◎ ANALYSIS

Air pollution



Air pollution: Presence of one or more contaminants such as dust, fumes, gas, mist, smoke or vapour in the outdoor atmosphere which is injurious to human, plant and animal life. Pollution can be man-made or natural. Man-made pollution can be described at 3 levels:

- **Personal Pollution:** It is caused by an individual and is restricted to small area.
 - ▶ **Example:** tobacco smoke, kitchen smoke.
- **Occupational Pollution:** It is due to an occupation which affects all the workers and some area around them.
 - ▶ **Example:** gem cutting, stone crushing; textile mill. These generally lead to occupational diseases or hazards.
- **Community Pollution:** It affects the whole community or area around the source of pollution.
 - ▶ **Example:** Thermal power plant, automobiles.

Right to a clean environment

- The UN Human Rights Council (UNHRC) has recognized access to a clean and healthy environment as a 'fundamental right' in Geneva, Switzerland.
- The right to a clean environment was centered on the Stockholm Declaration of 1972.
- 'Caring for the Earth 1991' and the 'Earth Summit' of 1992" also declared that human beings are entitled to a healthy and productive life in harmony with nature.
- The right to life (Article 21) has been used in a diversified manner in India. It includes, inter alia, the right to survive as a species, quality of life, the right to live with dignity and the right to livelihood.
- Further the 42nd Constitutional Amendment Act, 1976 incorporated two significant articles viz. Article 48-A and 51A (g) thereby conferring constitutional status to the environment protection.
 - ▶ **Article 48-A:** The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.
 - ▶ **Article 51A(g):** It is a duty of every citizen to protect and preserve the environment.

National Human Rights Commission (NHRC)

- It is a statutory body, established in 1993 under a legislation enacted by the Parliament, namely, the Protection of Human Rights Act, 1993.

Causes of Air Pollution

- Growing population
- Industrialisation
- Vehicular Pollution
- Fossil-fuel dependence
- Burning of Crop Stubble

National Clean Air Programme

- The NCAP is an initiative to reduce particulate matter (PM) pollution by 20-30% in at least 102 cities by 2024.
- It is a time bound national level strategy for pan India implementation to tackle the increasing air pollution problem across the country in a comprehensive manner.
- It is launched under **Ministry of Environment, Forest and Climate Change**.
- **Need:** Today cities occupy just 3% of the land, but contribute to 82% of GDP and responsible for 78% of Carbon dioxide emissions.
- **Approach:** The approach for NCAP includes collaborative, multi-scale and cross-sectoral coordination between the relevant central ministries, state governments and local bodies.
- **Dynamic:** The NCAP is envisaged to be dynamic and will continue to evolve based on the additional scientific and technical information as they emerge.

WHO's limits for air pollution

The World Health Organization has cut its recommended limits for air pollution, for the first time since 2005. The new recommendations target pollutants including particulate matter and nitrogen dioxide, both of which are found in fossil fuel emissions.

- **NO₂:** The new limit for nitrogen dioxide (NO₂), mainly produced by diesel engines, is now 75% lower.
- **PM 2.5:** Under the new guidelines, the WHO halved the recommended limit for the average annual PM_{2.5} level from 10 micrograms per cubic meter to 5.
- **PM 10:** It also lowered the recommended limit for PM₁₀ from 20 micrograms to 15.

Government initiatives to safeguard the environment

- **Graded Response Action Plan:** Delhi launched a 'Graded Response Action Plan' under directions from the Supreme Court.

- **NCAP:** Launched in 2019, the National Clean Air Programme (NCAP) aimed at a long-term, time-bound, national-level strategy to tackle the air pollution problem across the country in a comprehensive manner with targets to achieve a 20 percent to 30 percent reduction in particulate matter concentrations by 2024, keeping 2017 as the base year.
- **Green Skill Development program:** Launched in 2017, it aims to introduce innovative skills among the youth working in the environment and forest sector.
- **Compensatory Afforestation Fund Act (CAMPA):** One of the most robust legal acts aiming to hold those, who exploit natural resources and forests for the development of industries, responsible. The Compensatory Afforestation Fund Act was introduced in 2016.
- **Nagar Van Scheme:** Nagar Van Scheme was launched on the occasion of World Environment Day in 2020 (5th June). It aims to develop 200 Urban Forests across the country in the next five years.
- **National Ambient Air Quality Standards:** envisaging 12 pollutants have been notified under EPA, 1986 and 115 emission/effluent standards for 104 different sectors of industries,

besides 32 general standards for ambient air have also been notified.

- **Biofuels:** With reference to Vehicular pollution the steps taken include introduction of cleaner / alternate fuels like gaseous fuel (CNG, LPG etc.), ethanol blending, universalization of BS-IV.
- **Thrust to public transports:** ongoing promotion of public transport network of metro, buses, e-rickshaws and promotion of carpooling, streamlining granting of Pollution Under Control Certificate, lane discipline, vehicle maintenance etc.
- **National Air Quality index (AQI):** was launched by the Prime Minister in April, 2015 starting with 14 cities and now extended to 34 cities.

◎ CONCLUSION

India has a one of the world's best statutory and policy framework for environment protection. The problem lies in its effective implementation. The solution lies in better coordination among various agencies, robust implementation of the programs. Thrust to renewable energy, massive afforestation, hybrid vehicles, and public transportation is the need of the hour.

PRACTICE QUESTION

Q1: The right to clean, healthy and sustainable environment is a basic human right. Elucidate.

Q2: "Despite having one of the world's best statutory and policy framework for environment protection, India is facing a serious problem of pollution." Discuss why India is unable to curb the rising pollution? Suggest measures to minimise and mitigate the problem of environmental pollution.

INTERNATIONAL CONFERENCE ON DISASTER RESILIENT INFRASTRUCTURE (ICDRI)

CONTEXT

Recently, the Prime Minister addressed the inaugural session of 4th edition of International Conference on Disaster Resilient Infrastructure (ICDRI) through video conference.

◎ BACKGROUND

- Disasters triggered by natural hazards threaten the long-term sustainability of development in Asia and the Pacific.
- Countries across the region face significant disaster and climate risk.
 - From 2012 to 2021 alone, infrastructure failure due to insufficient resilience contributed to about 80,729 disaster-related fatalities.
- Infrastructure, homes, and businesses were damaged, with indirect economic and social consequences for jobs, productivity, and service provision.
- The escalation in disaster losses underscores the urgency of addressing disaster risk adequately when planning and designing infrastructure in developing member countries (DMCs) of the Asian Development Bank (ADB).

Disasters in India

- India is one of the world's most disaster-prone countries, as it is exposed to many natural hazards including floods, cyclones, droughts, and earthquakes.
- India started reorganizing its domestic DM system after a succession of major disasters, including the 1999 Super Cyclone Odisha (formerly known as Orissa), 2001 Gujarat earthquake, and 2004 Indian Ocean tsunami.
- The aftermath of these devastating disasters led India to enact the DM Act in 2005, adopt the National Policy on DM in 2009, and develop the National DM Plan in 2016.

◎ ANALYSIS

What is 'Infrastructure Resilience'?

- Infrastructure resilience is the ability of infrastructure systems to resist, absorb, accommodate, and recover from hazards to which they are exposed—and to mitigate the impact of such events on the users served by the systems.

- Resilience is a property of infrastructure systems that includes not only the performance of individual assets but also their collective role in providing essential services to users.

What are the benefits of disaster resilience investment?

- The avoidance of damage and loss
- reduce damage to infrastructure and other strategic assets
- reduce economic losses and disruptions
- Reduced risks can unlock economic development
- Motivating long-term planning by reducing the risk of disruptive disaster impact across longer time horizons
- In many instances, interventions made to improve resilience also generate co-benefits, for example, improvements in gender equality or enhancements in natural capital.

What is the need to focus towards managing disasters?

- Disaster risks are set to increase further over the coming years and decades, as both climate and population patterns change.
- According to the **Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)**, heavy precipitation events are very likely to intensify and become more frequent with increased global warming (IPCC 2021).
- Similarly, the risk from other hazards, including tropical cyclones and coastal flooding, is expected to increase as temperatures continue to rise.
- In addition to this increased risk of acute disasters, climate change is projected to cause significant long-term stresses from chronic hazards, such as rising sea levels, heat waves, and drought.
- Sea level rise is particularly relevant to many low-lying islands in the Pacific, as well as to Asian coastal regions.
- Insufficiently risk-informed development, unplanned urbanization, and population growth, resulting in an increase in the number of people and the value of economic activity in hazard-

exposed areas, will further heighten the risks from disasters.

What measures are required?

- Effective investment in resilient infrastructure can support wider social and economic resilience.
- Reliable infrastructure services can greatly reduce the impact of disasters on economies and communities, supporting relief and recovery efforts and the provision of essential services to vulnerable groups.

International Conference on Disaster Resilient Infrastructure (ICDRI):

- The International Conference on Disaster Resilient Infrastructure (ICDRI) is the **annual conference** of the Coalition for Disaster Resilient Infrastructure (CDRI).
- It brings together member countries, organizations and institutions **to strengthen the global discourse on disaster and climate resilient infrastructure.**
- In 2018 and 2019, the first and second International Workshop on Disaster Resilient Infrastructure took place in New Delhi, India. ICDRI 2021 was hosted virtually.
- The fourth edition of ICDRI is being organized in **partnership with the United States Government.**

ICDRI2022:

- ICDRI2022 will engage with decision-makers, practitioners and communities from across the world to discuss challenges, identify good practices, develop collaboration and galvanize concrete actions.
- It will include multi-sectoral and multi-country discussions around infrastructure transitions, risk governance and finance, innovation and human-

centered, ecologically sensitive design for building resilience.

Coalition for Disaster Resilient Infrastructure (CDRI):

- India initiated CDRI as a global partnership of 27 countries in 2019.
- It launched a programme to help small island states develop resilience to climate crisis at the 2021 UN Climate Change Conference (COP26) in Glasgow in November.
- The Coalition for Disaster Resilient Infrastructure (CDRI) is a **partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions.**
- It aims to promote the **resilience of new and existing infrastructure systems** to climate and disaster risks in support of sustainable development.
- The CDRI **Secretariat is based in New Delhi, India.**
- **Members:** 30 nations and 8 organisations.

Commitment to advance disaster-resilient infrastructure

- Since 2015, the international community's commitment to advancing disaster-resilient infrastructure has been reflected in:
- **Sustainable Development Goal 9** (build resilient infrastructure, promote sustainable industrialization, and foster innovation)
- **global target D** of the **Sendai Framework for Disaster Risk Reduction** (substantially reduce disaster damage to critical infrastructure and disruption of basic services)
- **Principles for Quality Infrastructure Investment** of the **Group of Twenty (G20)** countries, among others.

PRACTICE QUESTION

Q1: Discuss the significance of the Coalition for Disaster Resilient Infrastructure (CDRI) in achieving the sustainable development goal of resilient and inclusive infrastructure.

Q2: "According to the report by the World Meteorological Organization (WMO), India lost \$87 billion in a year due to disasters such as cyclones, floods and droughts as global warming starts impacting lives and property." In light of this statement, discuss the need to build disaster resilient infrastructure. How is India preparing to develop a disaster resilient infrastructure?

DISASTER INDUCED DISPLACEMENT

CONTEXT

- ❑ Latest report on Global internal displacement shows disasters continue to displace more and people are living longer in relief camps.
- ❑ The Geneva-based Internal Displacement Monitoring Centre (IDMC)'s said Assam is the only spot currently in India where people have been displaced due to disaster and are living in camps.



Historical Background

- Archaeological evidence suggests that human settlement patterns have responded repeatedly to changes in the climate.
- There is evidence that the emergence of the first large, urban societies was driven by a combination of climatic and environmental desiccation.
- During the 4th century CE, growing aridity and frigid temperatures from a prolonged cold snap caused the **Hun and German hordes to migrate across the Volga and Rhine into milder Gaul.**
- Similarly, in the 8th century CE, Muslim expansion into the Mediterranean and southern Europe was, to some extent, driven by **drought in the Middle East.**
- **Pastoralist societies** have of course habitually migrated, with their animals, from water sources to grazing lands in response to drought as well as part of their normal mode of life.
- But it is becoming apparent that migration as a response to environmental change is not limited to nomadic societies.
- In short, people have had to move for environmental reasons for thousands of years and the recent statistics point to a sobering picture of such migrants in the coming future.
- Deterioration of the environment on account of climate change is giving rise to climate disasters and extreme weather events that in turn are displacing more human population than **conflicts and disturbances.**
- **The World Migration Report 2022** of the United Nations maps the worsening displacement of people due to **climate-change-related events.**



Present conditions

- As early as 1990, the **Intergovernmental Panel on Climate Change (IPCC)** noted that the greatest single impact of climate change might be on human migration.
- Millions of people are displaced by shoreline **erosion, coastal flooding and agricultural disruption**.
- Over the past 30 years, the number of people living in coastal areas at high risk of rising sea levels has increased from 160 million to 260 million, 90% of whom are from poor developing countries and small island states.
- Hazards resulting from the increasing intensity and frequency of extreme weather events, such as abnormally **heavy rainfall, prolonged droughts, desertification, environmental degradation, or sea-level rise and cyclones** are already causing an average of more than 20 million people to leave their homes and move to other areas in their countries each year.
- As climate change worsens storms and droughts, climate scientists and migration experts expect the number to rise.

About India's disaster induced displacements

- India was the seventh most affected by the devastating impact of climate change globally in 2019 according to the **Global Climate Risk Index 2021**.
- The uneven monsoon across the country and extreme climate change-driven weather events are a matter of serious concern.
- This may force people to migrate internally within the Indian Territory.

Assam's situation:

- There were some 16,370 people living in displacement. It has been nearly 100 days that the monitoring tool constantly shows people living in such camps.
 - **In 2021**, disasters displaced 4.9 million people in India, according to the report. This was the highest figure for the country in five years.
 - This is the **fourth-highest in the world** and the highest in the South Asia region. Out of this, nearly 0.5 million people were in camps, like the nearly 40,000 in Assam for the last two months.
- - At this point of time, when mass migration of climate refugees is imminent, safeguards to the fragile indigenous population become necessary to avoid future conflicts.

- This requires **legislative and policy measures** so that the refugees get their due rights of settlement and rehabilitation.
- Also ensure the rights of indigenous people over the land and resources to avoid future conflicts between the groups.

● ANALYSIS

Who are climate refugees?

- There is no international definition of 'climate refugees', however, the concept was first introduced by Lester Brown of the World Watch Institute in the 1970s.
 - ▶ The term '**environmental refugees**' was used to denote the forced migration of people due to environmental degradation and natural disasters.
- In other words, these are the people who are forced to migrate to other places or cross borders due to catastrophic weather and natural events that may be climate-change driven.

What are the implications of such displacements?

- Educational and health care systems have to adjust to a sudden, new population. They need to bear the additional pressure on their resources.
- Unlike traditional refugees, climate refugees may be sent back to their devastated homeland or forced into a refugee camp, leading to livelihood crisis.
- Those climate refugees who are internal migrants (rural and coastal residents who are forced to migrate to urban areas within their country) face numerous problems. Their skills are not relevant in urban areas and thus they face livelihood crises.
- The phenomenon may **hinder development** in the following ways:
 - ▶ Climate refugees may increase pressure on urban infrastructure and services.
 - ▶ An increased population may undermine economic growth.
 - ▶ Lead to worse health, educational and social indicators.
 - ▶ Risk of conflict among migrants themselves.
- Climate change may also trigger conflict amongst the population as climate change may enhance the competition for resources like food, water and grazing lands.

What are the concerns for their existence?

- Although people fleeing from places, where they

face risks arising from the impacts of climate change, are often referred to as "climate refugees", on most occasions they do not fall within the scope of the refugee definition in Article 1 of the 1951 UN Refugee Convention.

- There are no legally binding agreements obliging countries to support climate migrants.
- The UNHCR (United Nations High Commissioner for Refugees) has thus far refused to grant these people refugee status, instead designates them as "environmental migrants," in large part because it lacks the resources to address their needs.
- Regional refugee instruments like the **1984 Cartagena Declaration** and the **1969 OAU Convention** offer a wider definition of protecting refugees fleeing conditions that "seriously disturb public order" but these regional instruments long pre-date when climate change was not a global concern.

What could be done further?

- The global community should endeavour to expand the definition of a "**refugee**." This may help them in getting access to **financial grants, food aid, tools, shelter, schools or clinics**. Providing legal recognition to them must be the top priority.
- The affected countries and regions may endeavour to adapt to climate change-driven extreme events by making a series of cost-benefit decisions. These adaptation techniques may help them in reducing their vulnerability to climate change events.
- Those countries which are less affected may formulate immigration policies on climate refugees.
- **The UN SDGs (Sustainable Development Goals)** may be of greater help as they address both migration and climate change. Several of the 169 targets established by the SDGs lay out general goals that could be used to protect climate migrants. **These include:**
 - ▶ Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
 - ▶ Integrate climate change measures into national policies, strategies, and planning
 - ▶ Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning.
 - ▶ **Drawing communities into the process of managing ecological resources, processes and services**, could help more effectively mitigate the impact of climate change, forecast need for migration and ease the process, while minimising distress.

Policies in India

- Disaster induced displacement in India is currently looked after by the National Disaster Management Authority (NDMA) and their state level counterparts.
 - ▶ These authorities have laid down their respective **preventive, preparedness, capacity building, and rehabilitation plans**.
 - ▶ Compensation in lieu of drought is also provided to farmers out of the disaster relief funds, although the amount currently being provided has often been termed grossly insufficient by various farmers' bodies, NGOs and academicians.
- Current national policies primarily address the short-term and sudden onset of climatic disasters.
 - ▶ They do not adequately consider slow-onset climate change events such as increased aridity and recurrent droughts, desertification, sea-level rise, river erosions, glacial melts, and losses caused by the same.

National Disaster Management Authority (NDMA):

- NDMA was established through the Disaster Management Act, 2005 enacted by the Government of India, and was formally constituted by Dec 2006.
- It is a Statutory Body for disaster management in the country.
- **Mandate:** Its primary purpose is to coordinate the response to natural or man-made disasters and for capacity-building in disaster resiliency and crisis response. It is also the apex body to lay down policies, plans and guidelines for Disaster Management to ensure a timely and effective response to disasters.

Functions:

The National Disaster Management Authority (NDMA) was established to follow the functions mentioned below:

- Implementing policies related to Disaster Management.
- Approving various plans like:
 - ▶ National Plans
 - ▶ Plans by different Ministries & Departments of the Indian Government
 - ▶ Other plans related to the National Plan.
- Laying down guidelines for State Government Authorities in accordance with the State Plan.

- ▶ Laying down guidelines for different Government Authorities in order to integrate the preventive measures for the Disaster or attenuation of its effect in their development plans & projects.
- Coordinating with the workforce and implementing the policies/plans necessary.
- Recommending the provision of funds necessary for mitigation.
- Depending on the Central Government, providing aid and support to the countries in need.

- Laying down guidelines and broad policies for the functioning of the NIDM (National Institute of Disaster Management).

◎ CONCLUSION

When the world is grappling with such a burning crisis like climate change, it is difficult to avoid its ramifications. Therefore, formulating policies and plans unitedly to minimise the loss and reduce vulnerability will be the way forward. This will require a multi-pronged and multi-sectoral approach by all the stakeholders.

PRACTICE QUESTION

- Q1: "According to the Assam State Disaster Management Authority, over half a million people have been displaced due to floods in Assam." In light of this statement, discuss the social and economic cost of disaster-induced displacement.**
- Q2: Floods are the most commonly occurring natural disaster in India. What are the reasons for frequent floods in India? Suggest steps that need to be taken for proper flood management.**

MARITAL RAPE

CONTEXT

On May 10, 2022, a two-judge bench of the Delhi High Court gave a split ruling on marital rape, thus ensuring a future hearing in the Supreme Court. The legal battles will, of course, continue but this may nevertheless be a good moment to examine the issues that lie behind it.

◎ BACKGROUND

- The definition of Marital Rape is provided under the Indian Penal Code (IPC), framed by the colonial rulers.
- **Section 375** of Indian Penal Code (IPC) defines the term rape as, any form of sexual assault involving non-consensual intercourse with a woman.
- However, as per the law, a wife is presumed to deliver perpetual consent to have intercourse with her husband after entering into a marital relation.
- **Exception 2 to Section 375**, provides a non-criminal status to sexual intercourse without the consent of the wife and immunizes such actions of the husband.
- The concept of marital rape is the epitome of **'implied consent'**, marital relation between a man and a woman implies to have consented sexual intercourse from both the sides.

◎ ANALYSIS

Marital Rape: Against legal provisions

- **Doctrine of coverture:** Non-criminalising status of marital rape emanates from British rule, which was influenced by and derived from the doctrine of merging identity of women with her husband.
 - ▶ In 1860s, when IPSC was drafted by the British government, married women were not considered as independent identity.
- **Violation of Right to Equality:** Article 14 of the constitution provides Right to equality, but the exception 2 to the section 375 of the IPC creates two different classes of women on the basis of marital status of the women.
 - ▶ Exemption creates the scope of victimization of married women and provides legal protection to the unmarried woman for the same act.
- **Violation of Article 21:** According to judicial interpretation, Protection of life and personal liberty includes right to life with dignity, right to health, right to privacy and right to safe environment etc.

Judicial interpretation on Marital Rape:

- **State of Kerala v/s Krishnappa:** Under this verdict Supreme Court held that sexual violence apart from

being a dehumanizing act is an unlawful intrusion of the right to privacy and sanctity of a female.

- ▶ Also, non-consensual intercourse amounts to physical and sexual violence.
- **Suchita Srivastava v/s Chandigarh Administration: SC under this verdict equated right to make choices related to sexual activity with the right to privacy, liberty, dignity and bodily integrity under Article 21.**
- **Justice Puttuswami v/s Union of India: SC recognized right to privacy as the fundamental right to all the citizen**
 - ▶ Right to Privacy includes decisional privacy of intimate relations.

Supreme court in all these judgment recognized right to abstain from sexual relation as a fundamental right under Article 21 of the Constitution for all women irrespective of their marital status, ensuring right to equality under Article 14.

Who are the major stakeholders involved?

- Husband
- Wife
- Society
- State

'Non-consensual Intercourse after marriage', Is it a rape?

- The ethical dilemma to consider the non-consensual intercourse after marriage arises from the roots of conflicts of values;
- **Right to privacy, liberty, dignity and bodily integrity of the wife v/s Family Institution and right of husband to have safe and private conjugal relation with wife.**

Interest of the wife:

- Article 21 of the constitution provides Right to life with dignity which includes privacy, liberty and bodily integrity. Right to life the epitome of the human existence which should be available to all the citizen irrespective of gender and marital status. Right to privacy includes decisional privacy of intimate relations. Merging the identity of

married women with that of her husbands and not recognizing wife's independent identity is a direct attempt to the liberty of the women. Any non-consensual attempt to have sexual and physical relation irrespective of marital status of the women should be considered as attempt to sexual violence and rape.

Interest of the husband:

- Marital relations between two individual provides a perpetual consent to have sexual intercourse from both the sides. Right to have sexual relation with wife also becomes essential agenda to protect the family institution of the society. Apart from family institutions it is also important to protect the right of husbands to get immunity from false complaints of sexual assault.

Who are prone to major losses?

- **Wife:** 'Marital Rape', non-consensual sexual intercourse with wife, violates the right to privacy and bodily integrity of the married woman.
- **Husband:** Instances of false and fake cases of marital rape complaints violates the right of the husband to live with dignity and right to have sexual relation to protect the family institution.
- **Society:** Conflict of values and ethical dilemma between of having conjugal rights negatively impact the social structure of the society and hinders the family institution.

◎ **CONCLUSION:**

The decision in the interest of the major stakeholders should be taken by considering the above points

PRACTICE QUESTION

Q1: Debate over marital rape is rooted in 'conventional morality' and undermines the autonomy of a class of people. Critically analyse.

Q2: "The marital rape exception is the result of moral ambiguity that comes out of uneasy relationship between law and morality." Discuss.

SHALLOW AND DEEP ECOLOGISM

INTRODUCTION: -

As the world continues to grapple with the unrelenting climatic changes, it becomes necessary to understand two kinds of environmental philosophy that reinvent the relationship between Nature and human beings; these philosophies are shallow and deep ecologism.

- To address environmental degradation, we seek to look beyond the popular pollution and conventional environmental degradation regimes. In this context, a Norwegian philosopher Arne Næss, in the 1970s, while placing humans at the heart of the environmental crisis, emphasized for the deep ecologism for imbibing the role of the individual in Nature.

What is Shallow and Deep Ecologism-?

Shallow Ecologism: -

- Shallow Ecology is a regime, which promotes powerful and fashionable conservation strategies against pollution and the haphazard depletion of resources.
- Shallow ecologism, while keeping conservation at its heart, takes an anthropocentric approach to conservation. Nature should be conserved for the sake of human welfare.
- The proponents of the shallow ecologism of this philosophy believe that we should conserve the environment because it will benefit humans to maintain their lifestyles.
- The approach advocates for the continuation of the exploitation of Nature but with specific short-term solutions using research & development (R & D) to find ways to manipulate and exploit Nature;
 - ▶ **For instance**, using vehicles with blended petrol/diesel; or electric vehicles, administering the non-conventional energy sources, or using air conditioners that do not release chlorofluorocarbons (CFCs), etc.
- This approach relies on the calculation of what will benefit the society utmost; hence, it follows the utilitarian principle of maximizing the benefits to the majority, as propounded by Jeremy Bentham.
- Ultimately, this branch of ecologism leads to inequitable distribution of resources, and undue benefits dwelling in the developed countries at the cost of environmental degradation.

Deep Ecologism: -

- Deep ecologism is a movement while keeping humans at its heart, regards human lives as just one of the equal components of the global ecosystem.
- In this biocentric approach or the 'life-centered' approach, it is believed that the environment carries with itself a certain intrinsic worth that obligates human beings to take care of it. As

a result, all individuals and elements from the natural environment form a unified ecological community.

- The deep ecology regime promotes "ecological wisdom", which is based on the principle of ecological harmony or equilibrium and emphasizes the policy acknowledging the inherent values of life.
- This philosophy stresses that humans have no right to reduce the richness, and diversity except to satisfy the vital human needs.
- Indian culture propagates the idea of deep ecologism in her practices; Naess, while citing Mahatma Gandhi in his studies, states, "*self-realization is the key to biospherical egalitarianism*".
- Moreover, we have several personalities, such as Amrita Devi Bishnoi who sacrificed her life, in the year 1730 to save 300 trees of her village from being cut by the Maharaja of Jodhpur, exemplifies the intrinsic relationship between humans and Nature. Other such environmentalists are Medha Patkar, Rajendra Singh, MC Mehta, etc.

Challenges:

- Taking the example of acid rain- the shallow reaction of acid rain is to demand more species of trees that will tolerate increased levels of acidity; while the deep ecology approach is to fight against the economic conditions, and technological responsibilities producing acid rains at the first place.
- The evolution of carbon credit works on the same shallow approach, as it promotes and motivates the higher emissions countries, such as the USA, and China to exploit the environment at the cost of the least developing countries.
- Moreover, as Næss stated that shallow approach is more influential than that of the deep ecologism as it focuses on human health, and affluence rather than deep-seated respect and even veneration for ways and forms of life. We, humans, are more prone to the practice, which is less hectic and more influential.

Required Measures

- **Socialism is the Key:** - a narrow focus on pollution and conservation projects, though, prone to solving pollution, generates evils of a different kind. Such projects monotonic projects may lead to an increase in the cost of living, and promote class differences. Hence, an ethically responsible ecologism is one that operates in the interest of all economic classes.
- **Inclusive, and Decentralized Decision-making:** - As Mahatama Gandhi stressed the promotion of local governance, and cooperation, the solution to the environment can be found in decentralizing the decision-making process and strengthening local participation. Indian Constitution also promotes the idea of local self-government through Municipalities, Panchayati Raj Institutions (PRI), etc. The participation of the local communities will pave the way for more inclusive decision-making,

social auditing and social impact assessment should promote the idea of deep environmental ethics.

◎ CONCLUSION:

- With the evolution of anthropocentrism, humans have cut themselves off from nature and started viewing Nature as an entity to serve humanity. This mentality disrupts the mutual, and integrated relationship between humans and Nature; hence, needs to be changed. Conclusively, it can be said that human control of the environment is a problem; not a solution.
- Aldo Leopold has said, "*a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community*". We need to link *Atman* as being part of the ultimate, which he ties to the environment and makes us a part of creation.

PRACTICE QUESTION

Q1: "Earth provides enough to satisfy every man's need but not any man's greed." In the context of this statement, discuss need to embrace austerity for sustainable development.

Q2: What do you understand by 'Environmental Ethics'? Discuss the significance of Environmental Ethics in ensuring well-being of humans in the backdrop of climate crisis.

SECTION: B
(CONTEMPORARY ISSUE
BASED ESSAY)

CURRENT AFFAIRS

THE INDO-PACIFIC REGION HAS BECOME THE MAIN THEATER OF GEOPOLITICS.

Hints:

Oceans know no boundaries. Yet, geographers told us where the Pacific Ocean ends and the Indian Ocean begins. But now strategic analysts relate to us a different story, conveying that the two oceans form a common space known as the Indo-Pacific. Neither among them nor in the policy community of a large number of countries there is consensus as to where the Indo-Pacific begins or ends or even whether it is acceptable as a strategic concept, construct, or strategy.

Nevertheless, the phrase – and the philosophy behind it – has dominated the strategic discourse in the past decade. Indo-Pacific, as an important intellectual tool as well as a policy imperative, is now here to stay. Much has changed, yet much remains unchanged when it comes to inter-relationships among the littoral states of the two mighty oceans. Both geopolitics and geo-economics exert their power to shape these relationships, both in their strategic and developmental or economic dimensions.

From the 1950s to the 1980s, Europe was the main theatre of world politics, whereas, in the late 1980s and 1990s, the focus shifted somewhat to West Asia. Now in the early decades of the 21st century, the Indo-Pacific – stretching from the Western Pacific to the east coast of Africa, or its core segment extending from Japan and Australia to India – has become the principal global theatre where all the key power centers of the world are engaged in re-defining their roles and relationships as a way to promote their respective national interests – as they see them. This is the platform where the drama of the shift of global power from the west and north to the east and south has been unfolding, day by day.

The rise in China's economic strength, military power, political and diplomatic influence in Asia and elsewhere is now an uncontested reality. This has given birth to aggressiveness and unilateralism by the Chinese government in the South China Sea and increased activism in South Asia as well as the Indian Ocean region in general. The Belt and Road Initiative (BRI) is but a reflection of China's new strength and desire to be a hegemonic power.

While the U.S. remains the world's largest economy and the foremost military power in Asia and the world at large, its will to use that power to curb and counter the rise of China remains debatable. America's policy fluctuations and the mix of inconsistency and unpredictability marked by frequent personnel

changes in top posts, exist alongside the architecture of new legislative acts and policy declarations and measures by the executive that project the U.S. determination to defend its interest in Asia. The result: deepening confusion and uncertainty in Asian capitals as to whether the U.S. and China are locked in a new cold war, or they could reach a deal in consonance with a new kind of relationship between the two Great Powers – as President Xi Jinping had once proposed to President Obama.

The re-emergence of the Quadrilateral Dialogue involving the U.S., Japan, India and Australia has been the calibrated response of four democracies in preventing a unipolar Asia. It makes gradual progress because, under pressure from the U.S., China has been making limited efforts to stabilize and improve its relations with India and Japan. Developments in China-Japan ties since PM Abe's visit to China in October 2018 merit a close watch. Australia has joined India and Japan to act on its hedging strategy. Therefore, it is apt to argue that further development of the Quad may be in proportion to the aggressiveness or conciliation shown by Beijing to threaten or accommodate the vital interests of the other Asian powers.

ASEAN, as the grouping of ten resident powers of the region, has become an ineffectual player, despite its assertion of 'ASEAN Centrality', to which incidentally everyone else claims to adhere to. Disunity among ASEAN member-states is reflected in its approach on the South China Sea dispute, and on Indonesia's current endeavour to evolve consensus on the concept of Indo-Pacific and ASEAN's role in it. Convergence between India and Indonesia on the Indo-Pacific, and Jakarta's idea of utilizing the mechanism of East Asia Summit (EAS) to address the region's strategic issues are highly relevant in this context.

In the Indian Ocean component of the Indo-Pacific, what is visible is a sharpening of rivalry between the Chinese Navy and the Indian Navy which is backed by the U.S. Navy. Chinese gains on India's periphery have been quite significant. On the other hand, through proactive diplomacy centered on Africa and the Indian Ocean states, India has strengthened its position by forging links in the domain of maritime security.

India's perspective and especially the government's policy have assumed a clear shape in the past five years. The nation not only has a well-defined Indian Ocean policy and Act East Policy, it also can lay claim to an Indo-Pacific policy. Many of the policy's elements

were reflected in the scores of joint statements that emerged following discussions at the highest political level during the incoming and outgoing visits in the tenure of the Modi government.

Economic dimensions of the Indo-Pacific will continue to receive the attention they deserve. China's BRI is one option before the stakeholders of the region. It was mostly welcomed and accepted with some enthusiasm, but there is now enough evidence of adverse reaction, cancellation or reduction of projects, and calls for a careful review. Other powers have put forward their ideas on connectivity initiatives, including the U.S., Japan, Australia and India. The coming years will reveal as to what extent these get accepted and implemented for common benefit. Economic integration, especially through easier trade and investment flows, would remain a common policy goal. Negotiations for the Regional Comprehensive Economic Partnership are at an advanced stage. Their early conclusion depends as much as on the receptiveness of China and ASEAN to India's needs and sensibilities as on India Inc's willingness to confront the challenges of competitiveness.

The Blue Economy is another component, apart from connectivity and free trade. If the idea of Indo-Pacific is anchored in the ocean space, it is pointless to restrict debate to security only. The other two pillars of Blue Economy – sustainability and productivity of oceans – too need to be considered and strengthened. Awareness about the challenges and opportunities of harnessing the potential of both mature and new sectors ranging from ports and shipping, fisheries and aquaculture to marine biotechnology, renewable energy and deep-sea mining has increased perceptibly in India. Much has been happening in this domain at the level of academics, business and industry, and government.

The real question is what do we expect to happen in the region in the next five years? Armed conflict, confrontation, cold war, unbridled competition, unexpected accidents, development of harmonious relations, or some kind of a mixture? The changing geo-strategic and geo-politic conditions makes us really ponder over how the advances should take place towards a balanced and holistic understanding of the fascinating great game in the Indo-Pacific.

SECTION: C

(PRELIMS)

CURRENT AFFAIRS

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ASI DEMANDS REMOVAL OF ENCROACHMENTS NEAR KARLA CAVES

© **CONTEXT:** The ASI recently demanded that the district administration remove the encroachments near Ekvira Devi temple which is close to Karla caves.

About Karla Caves:

- Location: Situated around 8 km from Bhaja, near Lonavala.
- The rock-cut Buddhist Karla Caves believed to date back to the 1st century BC.
 - The rock cut architecture, such as the **Petra in Jordan**, are structures that are created by cutting into sheer rock faces.

- It is believed that in the 2nd century BC – mid 2nd century AD there were carved thousands of caves in Sahyadri Hills (Western Ghats) for all Buddhist communities.
 - ▶ Part of Karla Caves have been created later – in the 5th – 10th centuries AD.

- They are remarkable because they have the **biggest and best-preserved prayer hall** in India.
- The Karla Caves were once a Buddhist monastery and consist of 16 excavations/caves.
- Most of the caves belong to the **early Hinayana phase of Buddhism**, except for three from the **later Mahayana phase**.
- **Chaityagriha: Main Cave:** The main cave is the huge prayer/assembly hall, known as a **chaityagriha**, that's believed to date back to the 1st century BC.
 - It has a magnificent roof made out of carved teak wood, rows of pillars decorated with sculptures of men, women, elephants, and horses, and a large sun window at the entrance that deflects rays of light towards the stupa at the rear.
- **Viharas:** The other 15 excavations are much smaller monastery living and prayer spaces, known as **viharas**.

Dynasty

- These amazing caves were started by ancient Buddhists more than 2,000 years ago: carbon-14 dating, inscriptions, and architecture style indicate that the oldest cave here has been created sometime around 120 BC, during the Satavahana dynasty.

- Temples carved in the natural cliff were especially well suited for Indian conditions and prescriptions of Buddhists – they were cool in summer, pleasant in winter, and spiritually were part of nature.

Architecture

- Karla Caves represent the highest achievement of **Indian rock-cut architecture** of the time and are one of the earliest examples of **ornate and richly decorated rock-cut temples in India**.
- The earlier caves were made by the more ancient branch of Buddhists – **Theravada Buddhists**.
 - Back then images of Buddha were not used in temple architecture. Later – Mahayana

Buddhist temples from the 5th to the 10th century – include statues of Buddha.

- The architecture of earlier cave temples in many respects repeats the **elements and construction of wooden architecture**.
- Karla Caves are characterized **by large horseshoe-shaped windows lighting the interiors and vaulted interiors**.



Archaeological Survey of India (ASI)

- ASI, under the Ministry of Culture, is the premier organization for the archaeological research and protection of the cultural heritage of the nation.
- It administers more than 3650 ancient monuments, archaeological sites and remains of national importance.
- Its activities include carrying out surveys of antiquarian remains, exploration and excavation of archaeological sites, conservation and maintenance of protected monuments etc.
- 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".

LEPAKSHI TEMPLE

◎ CONTEXT:

The Veerabhadra Swami temple, which got recently listed in the UNESCO's tentative list of world heritage sites in India for 2022, is a glorious example of the much-celebrated Vijayanagara architecture.

About Lepakshi Temple Complex:

- Lepakshi temple is located in Andhra Pradesh, built during the era of Vijayanagara Empire.
- The temple is famous for its three shrines, which are dedicated to
 - Lord Vishnu
 - Lord Shiva
 - Lord Veerabhadra.

- The **Veerabhadra Temple** was constructed by two brothers, Viranna and Virupanna.
- The temple is built in the **Vijayanagar architectural style** and has beautiful sculptures adorning the walls.
- It is situated atop the **Kurmasailam (tortoise-shaped) hill**.
- There is a huge Nandi bull made from a single granite stone.
 - Lepakshi has many murals from the Vijayanagar Era and the famous sculpture of the snake on the Nagalinga.
- The original structure is said to have been built by **Sage Agastya**, and finds mention in the **Skanda Purana** as one of the *108 Saivaite pilgrimage centres of ancient India*.
- The entire temple complex was believed to be re-built by **Virupanna**, and his brother **Veeranna** under the rule of **Vijayanagara king Achyuta Devaraya**.
- The main shrine, the **70-pillared nrutya mantapa**, the detailed and beautiful carvings on them depicts gods and artistes playing musical instruments and dancers in various poses and mudras.
 - The high ceiling is filled with long panels of fresco paintings.



Nagalinga



Fresco Paintings

The Ramayana link

- The name of the place itself is linked with the Ramayana.
- Legend has it that Jatayu fell at this spot after Ravana cut its wings when he tried to prevent Sita's abduction.
- Rama stumbled upon the bird when searching for Sita.
- After the injured bird narrated what had happened, Rama coaxed him to rise again, "le, pakshi" (rise, bird in Telugu).

The Age of Vijaya Nagara (1336-1647) AD :

- In 1336, Vijayanagar kingdom was established by Harihara and Bukka, who were two brothers and served in the army of Muhammad-bin-Tughlaq.
- They broke away from the Delhi Sultanate and established an independent state in Karnataka and established the capital city Vijayanagar on the banks of river Tungabhadra in 1336.
- Harihara and Bukka were helped and inspired by contemporary scholar and a saint Vidyananya for the establishment of their kingdom.
- **Sources:**
 - **Literary Sources:** Rayavachakam by vishvanatha sthanapati
 - **Foreign Accounts:**
 - ☐ Nicholo de conti visited Vijayanagar during times of Devaraya 1 and gave details about his personality.
 - ☐ Abdul Razzaq from Persia visited during Devaraya 2. He described the beauty of capital city Hampi.
 - ☐ Domingo Paes and Barbosa visited during Krishnadevraya time.
 - ☐ Nuniz visited during the times of achyuthdevaraya
 - **Inscriptions:**
 - ☐ Bitragunta inscription is the major source for construction of family history of sangama dynasty.
 - ☐ Srirangam copper plates of Devaraya II provide the genealogy and achievements of Vijayanagar rulers.
 - ☐ Various copper plate inscriptions of krishnadevraya time.
 - ☐ The Hampi ruins and other monuments of Vijayanagar provide information on the cultural contributions of the Vijayanagar rulers.
 - **Political History:** Vijayanagar was ruled by four different dynasties
 - ☐ Sangama dynasty(1336-1486)
 - ☐ Saluva dynasty(1486-1506)
 - ☐ Tuluva dynasty(1506-1565)
 - ☐ Aravidu dynasty(1570-1647)
 - **Architecture:**
 - ☐ They used the Dravidian style of architecture later added some unique features to it and it came to be called as Vijayanagara style.
 - ☐ Preferred for its durability, local hard granite was the building material of choice, as it had been for the Badami Chalukyas.
 - ☐ Vijayanagar temples are surrounded by strong enclosures and characterized by ornate pillared kalyanamandapa (marriage halls); tall rayagopurams (carved monumental towers at the entrance of the temple) built of wood, brick, and stucco in the Chola style; and adorned with life-sized figures of gods and goddesses.

- This dravida style became popular during the reign of Krishnadeva Raya and is seen in South Indian temples constructed over the next two centuries.
- The courtly architecture of Vijayanagar is generally made of mortar mixed with stone rubble and often shows secular styles with Islamic-influenced arches, domes, and vaults.
- Some famous temples exemplifying the Vijayanagar style include the Virupaksha Temple at Hampi and the Hazara Rama temple of Deva Raya I etc.

RAM MOHAN ROY 250 YEARS

◎ **CONTEXT:** Union Culture Ministry will commemorate the 250th Birth Anniversary of Raja Ram Mohan Roy till 22nd of May next year under the aegis of 'AzadiKaAmritMahotsav'.

About Raja Ram Mohan Roy

- Raja Ram Mohan Roy was an Indian religious, social, and educational reformer.
- He was born on May 22, 1772, in Radhanagar in Bengal.
- He is famously known as the "Father of Modern India" or "Father of the Bengal Renaissance".
- He was one of the founders of the Brahma Sabha in 1828, the precursor of the BrahmaSamaj, a social-religious reform movement.
- He crusaded against Hindu customs such as sati, polygamy, child marriage and the caste system.
 - He demanded property inheritance rights for women.
- In 1817, in collaboration with David Hare, he set up the Hindu College at Calcutta.
- In 1830, Ram Mohan Roy traveled to the United Kingdom as an ambassador of the Mughal Empire to ensure that Lord William Bentinck's Bengal Sati Regulation, 1829 banning the practice of Sati was not overturned.
- His most popular journal was the SambadKaumudi.
 - It covered topics like freedom of the press, induction of Indians into high ranks of service, and separation of the executive and judiciary.
- He was given the title of **Raja by Akbar II, the Mughal emperor.**

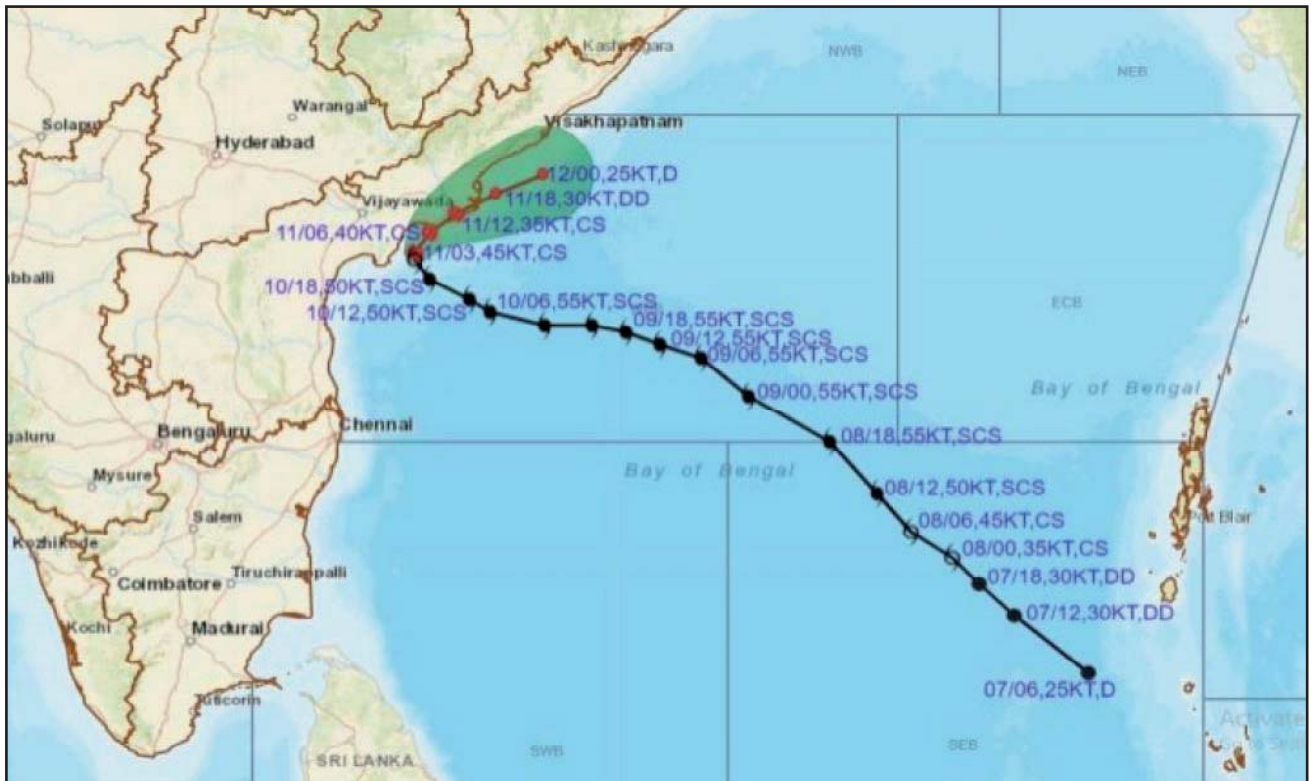
CYCLONIC STORM ASANI

◎ **CONTEXT:** The cyclonic storm Asani weakened into a deep depression and crossed the Andhra Pradesh coast.

About Cyclone Asani:

- Cyclone Asani is brewing in the southern Andaman Sea.
- The name Cyclone Asani has been given by Sri Lanka. It means 'wrath' in Sinhalese.
- Cyclone Asani has weakened into a deep depression with a wind speed of 55-65 kmph gusting to 75 kmph.

- Gulab, Titli, Hudhud, Helen, and Lehar — these five cyclones have made landfall over Andhra Pradesh in the last 10 years.
- The cyclone that will form after Asani will be called Sitrang, a name given by Thailand.



**India Meteorological Department
Tropical Cyclone Intensity Scale**

Category	Sustained winds (3-min average)
Super Cyclonic Storm	>120 kt >222 km/h
Very Severe Cyclonic Storm	64–119 kt 118–221 km/h
Severe Cyclonic Storm	48–63 kt 88–117 km/h
Cyclonic Storm	34–47 kt 62–87 km/h
Deep Depression	28–33 kt 52–61 km/h
Depression	≤27 kt ≤51 km/h

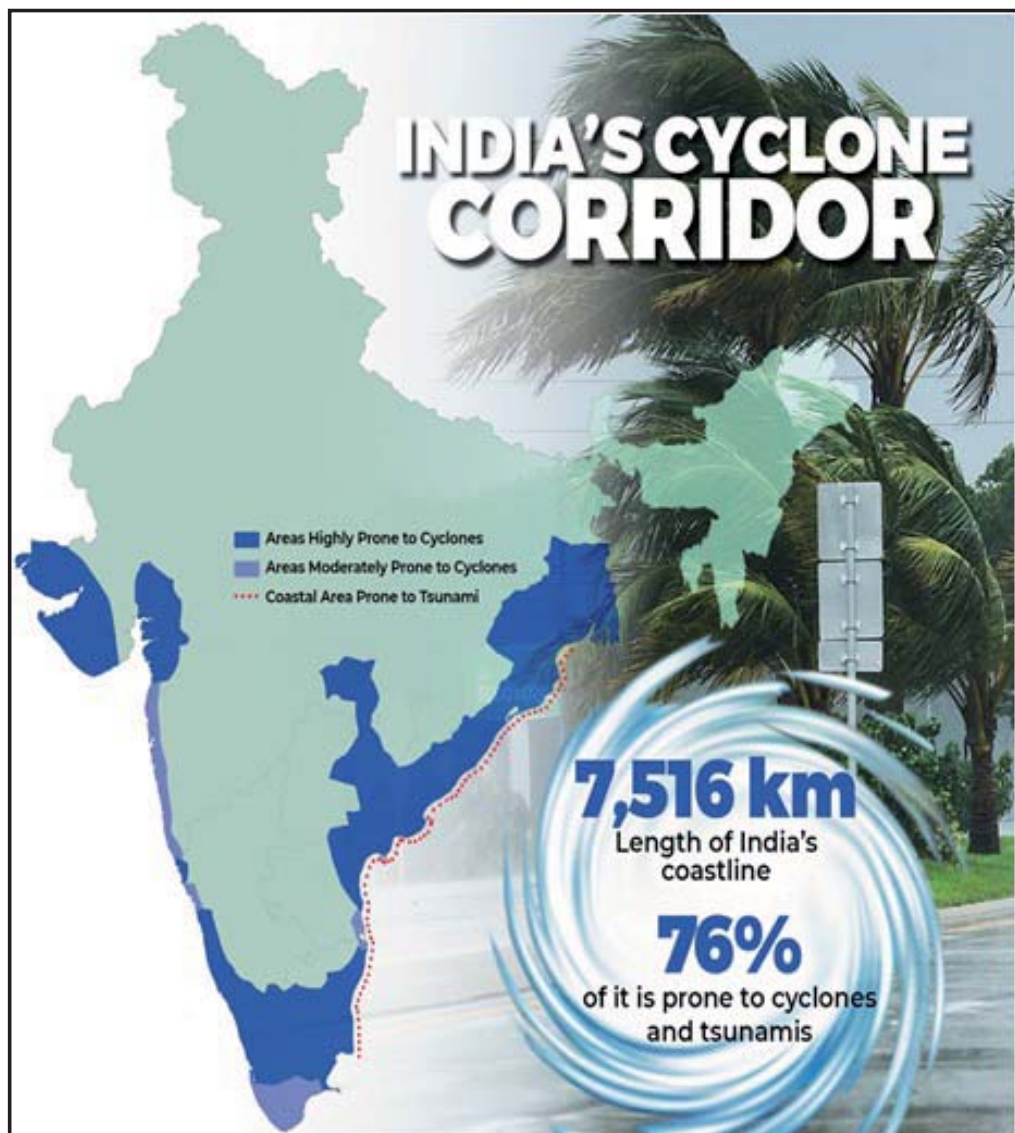
What are Tropical Cyclones?

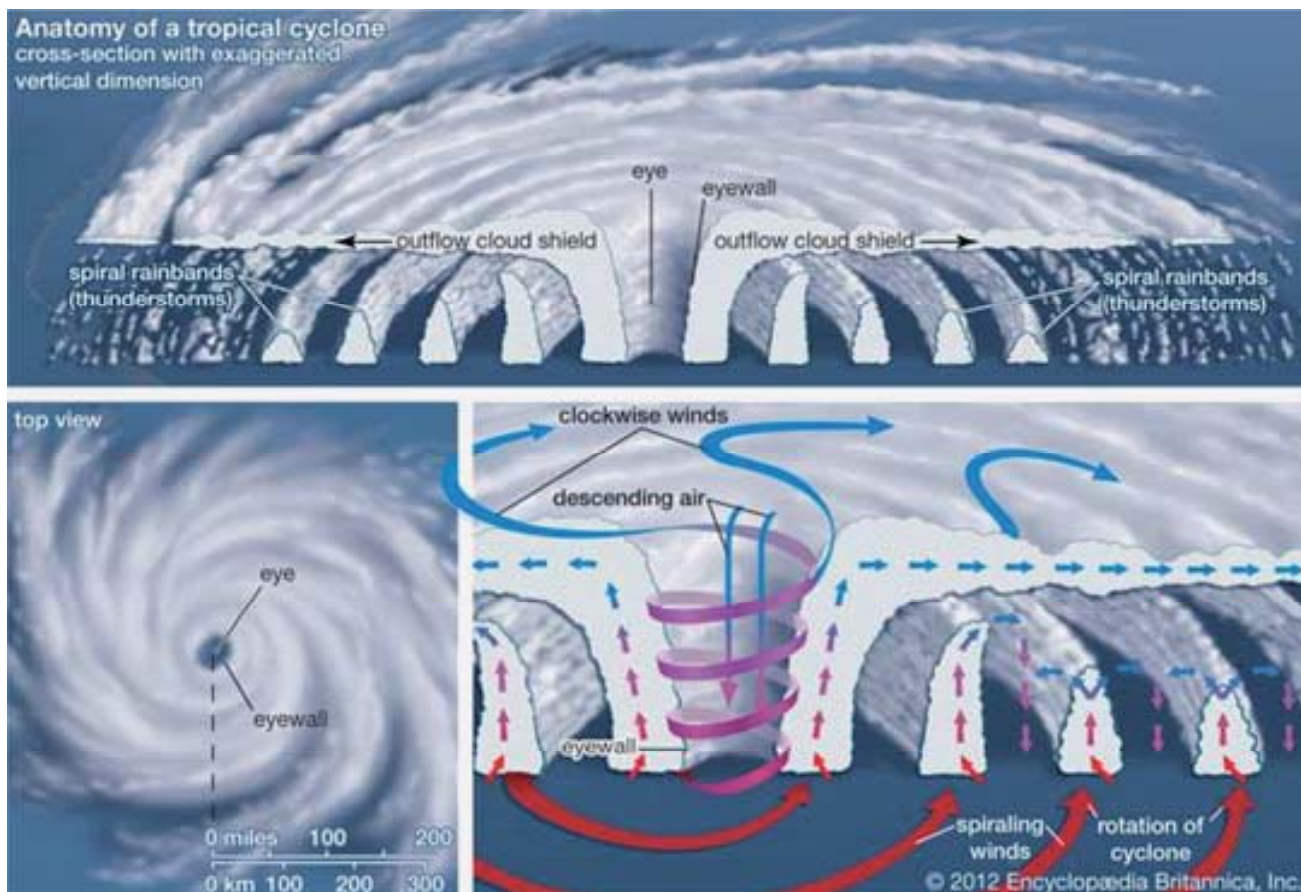
- Tropical cyclones, also known as typhoons or hurricanes, are among the most destructive weather phenomena.

- They are intense circular storms that originate over warm tropical oceans, and have maximum sustained wind speeds exceeding 119 kilometres per hour and heavy rains.
- However, the greatest damage to life and property is not from the wind, but from secondary events such as storm surges, flooding, landslides and tornadoes.

Different Names

- Depending on its location and strength, a tropical cyclone is referred to by different names, including hurricane, typhoon, tropical storm, cyclonic storm, tropical depression, and simply cyclone.
- **Hurricane:** Atlantic Ocean
- **Typhoon:** North-western Pacific Ocean
- **Tropical cyclones:** South Pacific or the Indian Ocean





The new list:

- The list comprises names of 13 cyclones each for the 13 member countries, totaling to 169.
- The names for India include **Gati, Tej, Murasu, Aag, Vyom, Jhar, Probaho, Neer, Prabhanjan, Ghurni, Ambud, Jaladhi and Vega.**
- Some of the names for Bangladesh are Nisarga, Biparjoy, Arnab and Upakul.
- Tropical cyclones forming over different ocean basins are named by the concerned RSMCs & TCWCs.
- For north Indian Ocean, including Bay of Bengal and Arabian Sea, the RSMC, New Delhi, assigns the name to tropical cyclones following a standard procedure, an IMD release stated.

Indian Meteorological Department:

- Indian Meteorological Department was established in the year 1875 with its headquarters at Calcutta.
- IMD's headquarter shifted to Shimla in 1905, to Pune in 1928 and then to Delhi in 1944.
- Worldwide, there are six Regional Specialised Meteorological Centres (RSMCs) and five regional Tropical Cyclone Warning Centres (TCWCs) which issue advisories and names of tropical cyclones.
- The IMD is one of the six RSMCs to provide tropical cyclone and storm surge advisories to 13 member nations, which include **Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, the UAE and Yemen.**

HATTIS OF HIMACHAL PRADESH

◎ **CONTEXT: CENTRE WOULD CONSIDER FAVOURABLY THE HIMACHAL PRADESH GOVERNMENT'S REQUEST FOR INCLUSION OF THE HATTI COMMUNITY IN THE LIST OF SCHEDULED TRIBES IN THE STATE.**

Hattis:

- The Hattis are a close-knit community who got their name from their **tradition of selling homegrown vegetables, crops, meat and wool etc.** at small markets called 'haat' in towns.
- The Hatti community, whose men generally don a distinctive white headgear during ceremonies, is **cut off from Sirmaur by two rivers called Giri and Tons.**
- Tons divide it from the Jaunsar Bawar area of Uttarakhand.
- The Hattis who live in the **trans-Giri area** and Jaunsar Bawar in Uttarakhand were once part of the royal estate of Sirmaur until Jaunsar Bawar's separation in **1815.**
- Due to topographical disadvantages, the Hattis living in the Kamrau, Sangrah, and Shilliai areas lag behind in education and employment.

Societal norms of Hattis

- The Hattis are governed by a **traditional council called Khumbli**, which like the khaps of Haryana, decide community matters.
- The Khumbli's power has remained unchallenged despite the establishment of the **panchayati raj system.**
- The two clans have similar traditions, and inter-marriages are commonplace.
- There is a fairly rigid caste system among the Hattis — the **Bhat and Khash are the upper castes, while the Badhois are below them.**
- **Inter-caste marriages** have traditionally remained a **strict no-no.**



Since when have the Hattis been demanding tribal status?

- The community has been making the demand since 1967, when tribal status was accorded to people living in the Jaunsar Bawar area of Uttarakhand, which shares a border with Sirmaur district.

- Their demand for tribal status gained strength because of resolutions passed at various maha Khumbhis over the years.

INDIA'S FIRST BRIDGITAL AUTISM SUPPORT NETWORK SET UP

© **CONTEXT:**

The Tata Power Community Development Trust (TPCDT) has partnered with the Center for Autism and other Disabilities Rehabilitation Research and Education (CADRRE) to launch 'Pay Attention - A different mind is a gifted mind', India's first bridgital autism support network.

About the initiative:

- To create awareness about autism spectrum disorder (ASD) and help people understand, accept and support individuals with autism and their parents and caregivers
- The initiative shall pave the way for small towns and rural India to access specialised care and support and help create an auxiliary network of champions for the differently abled.
 - This platform shall also enable mentoring, skilling and meaningful livelihoods for people with autism.
- In the first phase, the initiative will primarily focus on supporting children with autism, and subsequently, in the second stage, it will focus on young adults, empowering them with life skills and career readiness.

Autism Quick facts

- Autism is a bio-neurological developmental disability that generally appears before the **age of 3**
- Autism impacts the normal development of the brain in the areas of social interaction, communication skills, and cognitive function.
- Autism now affects **1 in 59** children.
- Boys are four times more likely to have autism than girls.
- The rate of autism has steadily grown over the last twenty years.
- Children with autism do progress – early intervention is key.

POLICY LAB SOURCE: <https://nationalautismassociation.org/resources/autism-fact-sheet/>

- It will create a network of grassroots champions, enable early identification, first-level care, teach social skills, ways to ease activities of daily living, hold workshops for sensory and motor development – art and craft, dance, music therapy, physical and mental fitness, communication skills and enable support for academics.
- In addition to this, a toll-free autism support helpline is also launched at 1800 2099 488 to provide interactive support and much-needed professional aid for families in need.

Autism spectrum disorder (ASD)

- Autism spectrum disorder (ASD) is a developmental disability that can cause significant social, communication and behavioral challenges.
- It can involve a wide range of symptoms and skills.
- ASD can be a minor problem or a disability that needs full-time care in a special facility.
- People with autism have trouble with communication.
- They have trouble understanding what other people think and feel.
- This makes it hard for them to express themselves, either with words or through gestures, facial expressions, and touch.

E-PASSPORT

◎ CONTEXT:

The government is using technology to usher in transparency. It is now planning to roll out e-passports soon.

What is e-passport?

- According to the proposal, the e-passport will be a **combination of paper and electronic passport, with a Radio Frequency Identification (RFID) chip.**
- An antenna will be embedded as an inlay in the back cover.
- The passport's critical information will be stored in the chip and printed on the data page.
- The characteristics of the e-passport are specified by the International Civil Aviation Organization, an agency of the United Nations.

Privacy and Security:

- The government clarified that data of the citizens **obtained for e-passport will be used only for the purposes of issuance of the passport and related services.**
- There will not be any secondary use of the data, thereby safeguarding privacy concerns.
- Further transaction processes are authenticated by digital certificates and are cryptographically signed.
- Once captured, the **data is stored in a secured industry-standard database.**
- The Security Operations Centre will perform relevant database security-related controls round the clock.

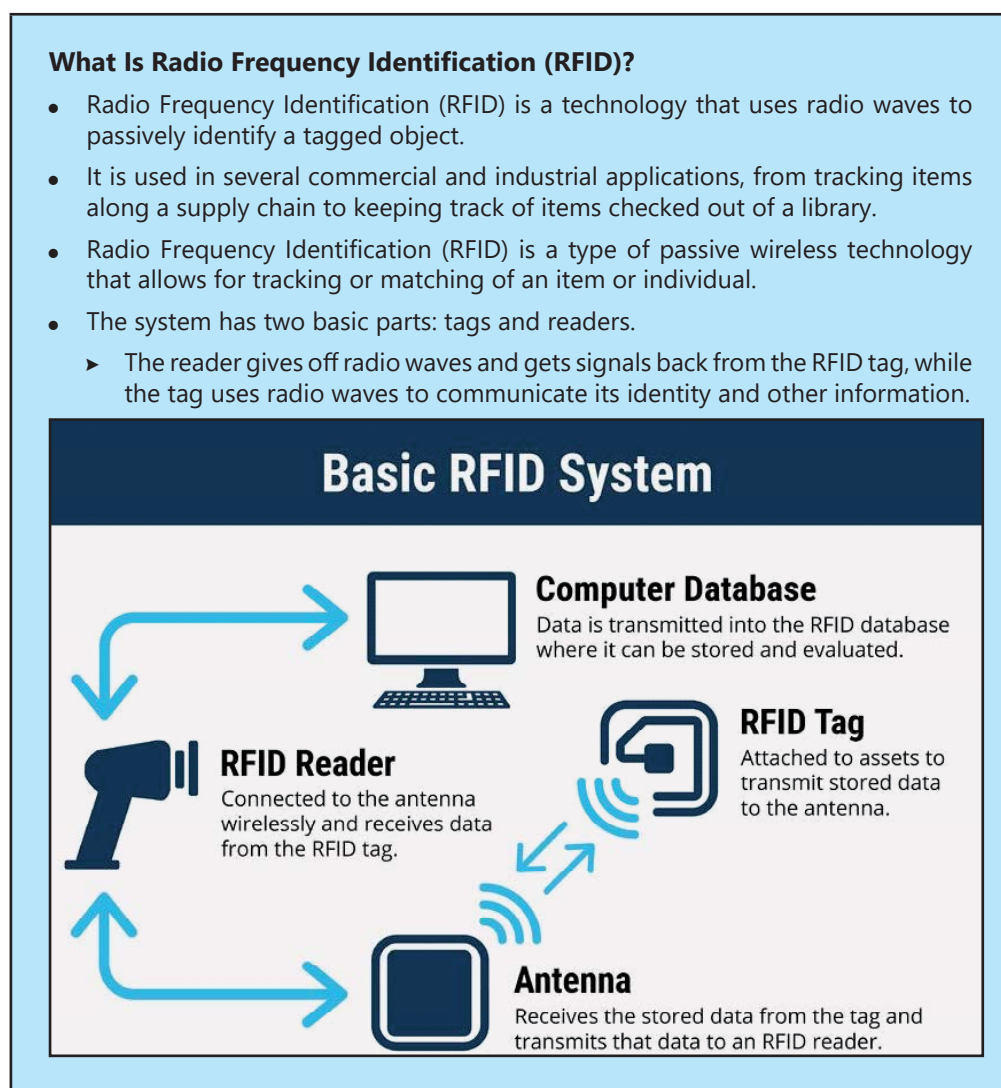
Implementation and technical responsibilities:

- **Tata Consultancy Services (TCS)** has reportedly bagged the contract for delivering e-passports.
 - While the government will source the hardware chips, TCS will be responsible for their encoding.

- The government has entrusted **National Informatics Centre (NIC)** with the technical responsibilities.
- The e-passports will be produced by the India Security Press in Maharashtra's Nashik, which has issued letters of intent for the procurement of 4.5 crore ICAO-compliant electronic chips.
- Interestingly, the government issued **India's first e-passport with biometric details to former President Pratibha Patil in 2008.**
- E-passports enhance the security of passports, eliminate duplication, eliminate data tampering and will be used by border control authorities for monitoring the entry and exit of passengers.

What Is Radio Frequency Identification (RFID)?

- Radio Frequency Identification (RFID) is a technology that uses radio waves to passively identify a tagged object.
- It is used in several commercial and industrial applications, from tracking items along a supply chain to keeping track of items checked out of a library.
- Radio Frequency Identification (RFID) is a type of passive wireless technology that allows for tracking or matching of an item or individual.
- The system has two basic parts: tags and readers.
 - ▶ The reader gives off radio waves and gets signals back from the RFID tag, while the tag uses radio waves to communicate its identity and other information.



FLOATING BORDER OUTPOSTS ON INDO-BANGLADESH BORDER

- © **CONTEXT:** Union Home and Cooperation Minister inaugurated three floating Border Outposts (BOP) on the Indo-Bangladesh border to protect the inaccessible areas of the Sundarbans.

About:

- The **floating Border Outposts (BOP) Sulej, Kaveri and Narmada** have been built by the Koch Shipyard.
- The floating BOPs are equipped with modern facilities and safety equipment.
- The front section of the BOP is **bullet proof** for the safety of the jawans.
- A BOP is accompanied **by 6 small boats** and it has adequate **arrangements to prevent both infiltration and smuggling**.
- Laid the foundation stone of **'Maitri Sangrahalaya'** or 'Friendship Museum'.
- A **boat ambulance** at a floating border outpost (BOP) at Haridaspur in the state.
- The BOPs with **three digi-sets can remain afloat without refilling fuel for a month** and will guard the 80-km riverine border between India and Bangladesh.
 - Three more BOPs will be added to the fleet in the days to come.

**Additional Information:**

- The government of Bangladesh will organise several programmes across the country to celebrate the 181st birth anniversary of Gurudev Rabindranath Tagore on 8 May.
- The main event will be held at the Rabindra Kuthibari in Shilaidaha of Kumarkhali upazila of Kushtia district.
- The theme of this year's celebration of Gurudev Rabindranath Tagore birth anniversary has been kept as 'Crisis of Humanity and Rabindranath'.
- The Ministry of Culture and Bangla Academy will print memorabilia and posters on the occasion of the poet's birth anniversary.

Life of Rabindranath Tagore

- Tagore took birth in the city of Calcutta on 6th May, 1861

- His school life enriched his thoughts about the importance of school. According to him school was a place which hinders the native growth of the child and brought unwarranted and oblivion harm to the development of personality. All this made him to construct his own philosophy of life and education.
- At the age of 40, he himself initiated to set up his Shantiniketan Ashram (School) with around ten boys only to materialize his own ideas and ideals.
 - ▶ This institution turned into a world famous Vishva Bharati - a seat of international university and a melting point of Eastern and Western culture-a junction of humanity.
- Rabindranath Tagore a.k.a Gurudev passed away on August 7, 1941 leaving his permanent impression in the hearts of mankind.

COUNTRY'S FIRST AMRIT SAROVAR INAUGURATED IN UP

◎ **CONTEXT:**

The country's first "Amrit Sarovar" has been inaugurated at Patwai in Rampur in Uttar Pradesh.

About India's first 'Amrit Sarovar':

- Amrit Sarovar in Rampur is basically one of 789 ponds which the Uttar Pradesh government will develop.
- **Cost:** Nearly INR 60 lakh were spent in the creation of this water body.
- Amrit Sarovars have the potential to play an important role in increasing the availability of water, both on surface and under-ground.

Water crisis

- In rural India, 80 to 90% of drinking water needs are fulfilled by groundwater resources.
- The groundwater levels declined by over 60% between 2007 and 2017, and of the extracted water, almost 90% is used in agriculture.
- According to a report by the Central Pollution Control Board, cities are home to 36% of India's population but account for 70% of water pollution.

Mission Amrit Sarovar

- The Government launched the Mission Amrit Sarovar in April 2022 to conserve water for the future.
- **Objective:** Objective of Mission Amrit Sarovar is "construction/development of at least 75 Amrit Sarovar (ponds) in every district of the country".
 - Each Amrit Sarovar will have pondage area of minimum of 1 acre (0.4 hectare) with water holding capacity of about 10,000 cubic meter.
- **Participating agencies:** Following Ministries and Organizations have agreed to participate:
 - Ministry of Rural Development (Dept. of Rural Development/ Dept. of Land Resources)
 - Ministry of Jal Shakti (Dept. of Water Resources/ Dept. of Drinking Water & Sanitation)

- Ministry of Culture
- Ministry of Panchayati Raj
- Ministry of Environment, Forest & Climate Change
- Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N)
- The Mission Amrit Sarovar is to be completed by 15th August 2023.

GOVT FLAGGED LOW SCORE IN WORLD BANK'S GOVERNANCE INDEX

◎ CONTEXT:

In an analysis of the World Bank's World Governance Indicators, a key input for India's sovereign ratings, a presentation by the Ministry of Finance's Economic Division found that India's scores were "much below" its peers on all counts.

About World Bank's World Governance Indicators:

- The World Bank's World Governance Indicators provide a ranking of 215 countries territories based on **six dimensions of governance**:
 - Voice and Accountability;
 - Political Stability and Absence of Violence;
 - Government Effectiveness;
 - Regulatory Quality;
 - Rule of Law and
 - Control of Corruption.
- These aggregate indicators combine the views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries.
- India's WGI score: It is much below the BBB Median on all six indicators.
 - While BBB is an investment-grade rating issued by global rating agencies such as S&P and Fitch.
 - A WGI score below BBB Median would suggest that India falls below the middle when the scores of countries are arranged in a descending order.
 - WGI play a key role in deciding sovereign credit rating of any country. India is losing its sovereign credit rating due to low score in WGI parameters.

Governance:(as defined by WGI)

- Governance consists of the traditions and institutions by which authority in a country is exercised.
- This includes:
 - ▶ the process by which **governments are selected, monitored and replaced**;
 - ▶ the capacity of the government to **effectively formulate and implement sound policies; and**
 - ▶ the **respect of citizens** and **the state** for the institutions that govern economic and social interactions among them



6TH INDIA-GERMANY INTER-GOVERNMENTAL CONSULTATIONS

© **CONTEXT:** Recently, the Governments of the Federal Republic of Germany and of the Republic of India held the sixth round of Inter-Governmental Consultations.

Highlights of 6th round of Inter-Governmental Consultations:

- The two countries signed agreements for collaboration on:
 - Green and Sustainable Development Partnership
 - The implementation of Triangular Development Cooperation projects in Third Countries
 - Indo-German Development Cooperation Regarding Renewable Energy Partnership
 - The Initialing of the Agreement on a Comprehensive Migration and Mobility Partnership
 - Continuation of cooperation in the field of advanced training of corporate executives and junior executives from India.
 - Agroecology

- Forest Landscape Restoration
- Indo – German Green Hydrogen Task Force

Joint declaration of Intent on Indo – German Green Hydrogen Task Force:

- India has huge **ambitions in energy transition**.
 - It will add 500GW of non-fossil fuel capacity by 2030.
 - India is coming out with bids for green hydrogen.
- Under the agreement which was signed today both countries will establish an Indo-German Green Hydrogen Task Force to strengthen **mutual cooperation** in production, utilization, storage and distribution of Green Hydrogen through building enabling frameworks for projects, regulations and standards, trade and joint **research and development** (R&D) projects.
- India has launched the **National Green Hydrogen Mission** with the goal to make India the global hub of Green Hydrogen production and export.
 - Germany also has developed an ambitious National Hydrogen Strategy with the aim to assume global leadership in hydrogen technologies.
 - Blessed with abundant renewable energy potential and experience of implementing renewable energy projects, India can produce low-cost Green Hydrogen to progressively decarbonize a range of industry sectors, and also export it to meet global demand.
 - With strengths in innovation and manufacturing, Germany is already implementing numerous hydrogen projects.

India-Germany:

- India was the **first country** to end the state of war with Germany in 1951, and therefore was among the first countries to grant the Federal Republic of Germany **diplomatic recognition**.
- Germany established its Consulate General in Mumbai in 1951, leading to the establishment of a full-fledged Embassy in New Delhi in 1952.
- India and Germany maintain a '**Strategic Partnership**' since 2000-01.
- In May 2000, both countries adopted the '**Agenda for the Indo-German Partnership in the 21st Century**', which includes regular meetings of both Heads of Government as well as annual meetings of the Foreign Ministers.

MISSION SAGAR IX


◎ CONTEXT:

With the overarching aim of providing critical medical aid to Sri Lanka during the ongoing crisis, INS Gharial as part of Mission SAGAR IX reached Colombo.


About Mission SAGAR IX:

- INS Gharial delivered over 760 kgs of 107 types of critical lifesaving medicines.
- In line with Gol's vision of SAGAR – Security And Growth for All in the Region – the Indian Navy undertakes several deployments titled 'Mission SAGAR' to assist friendly IOR littorals.
- Since May 2020, Indian Navy has successfully concluded eight such missions, deploying ten ships to 18 Friendly Foreign Countries.

- With a steadfast intent of delivering a high quantum of humanitarian assistance to our neighbours, personnel from ships and shore organisations of Indian Navy have invested close to a million man-hours to bring succour to our friends, overseas.



INS GHARIAL




KNOW YOUR NAVY


Indian Naval Ship Gharial, was commissioned on 14 Feb 1997 and since then she has been rendering yeoman service in amphibious operations of the Indian Navy.

The Indian Navy has a tradition of rechristening ships with the same name. The previous landing ship tank was commissioned on 17 Feb 1966 and served the Indian Navy well till her decommissioning on 30 Sep 1987.

The New



The Old



INDIAN NAVY-MISSION DEPLOYED AND COMBAT READY

What is SAGAR?

- In 2015, India unveiled its strategic vision for the Indian Ocean i.e. **Security and Growth for All in the Region (SAGAR)**.
- It is an increasing recognition of the increasing importance of **maritime security, maritime commons and cooperation**.
- The initiative is in line with the **principles of the Indian Ocean Rim Association (IORA)**. The mission aims to
 - ▶ to seek a climate of trust and transparency
 - ▶ respect for international maritime rules and norms by all countries
 - ▶ sensitivity to (towards) each other's interests
 - ▶ peaceful resolution of maritime issues
 - ▶ increase in maritime cooperation

TORREFIED BIOMASS PELLETS

© **CONTEXT:**

NTPC Ltd has invited Expression of Interest to produce torrefied biomass pellets from Indian startups.

About:

- It intends to provide a platform to Indian startups to enable them to develop advanced technology for producing torrefied biomass pellets that are well-suited for decentralized small-scale users.

- India produces an estimated 230 Million Metric Tonnes per annum, MMTA of biomass that is either wasted or burnt.
- Biomass co-firing in power plants has proven to be a major solution to cater to this menace thereby reducing carbon footprint in the environment.
- NTPC has been the pioneer in co-firing Biomass in its coal-fired power plants.

Torrefied Biomass Pellet:

- Torrefied biomass pellets are regarded as one of the most efficient biofuel manufacturing processes to produce the coal substitute known as torrefied pellets.
- In the torrefaction process, biomass is processed at the temperature of 250-350°C in the absence of oxygen atmosphere, decomposing the Biomass components, preserving energy content so that the energy density of the torrefied biomass becomes in pellet or briquette form which is much higher than other solid biomasses in trade.
- The properties of the final product depend on the torrefication process and on the kind of feedstock are used.
- Depending on factors such as time, temperature and residence time, the biomass can be torrefied to different torrefaction degrees/temperatures.
- Torrefied biomass pellet production needs to be given importance, as torrefied biomass pellet has more energy density, and its characteristics are closer to coal. Further, torrefied biomass pellets will reduce average transportation costs.

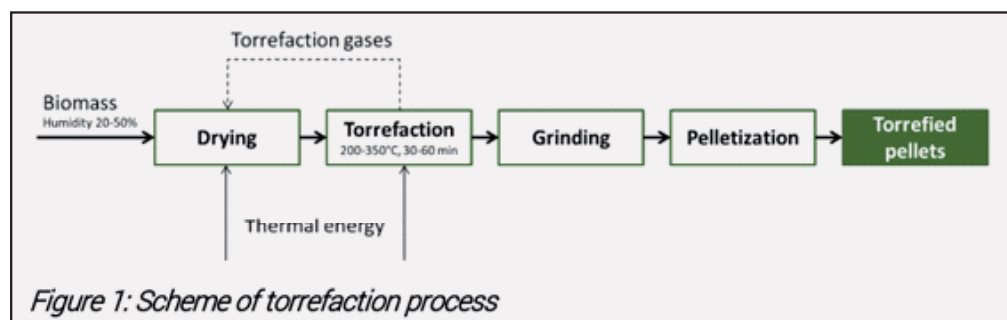
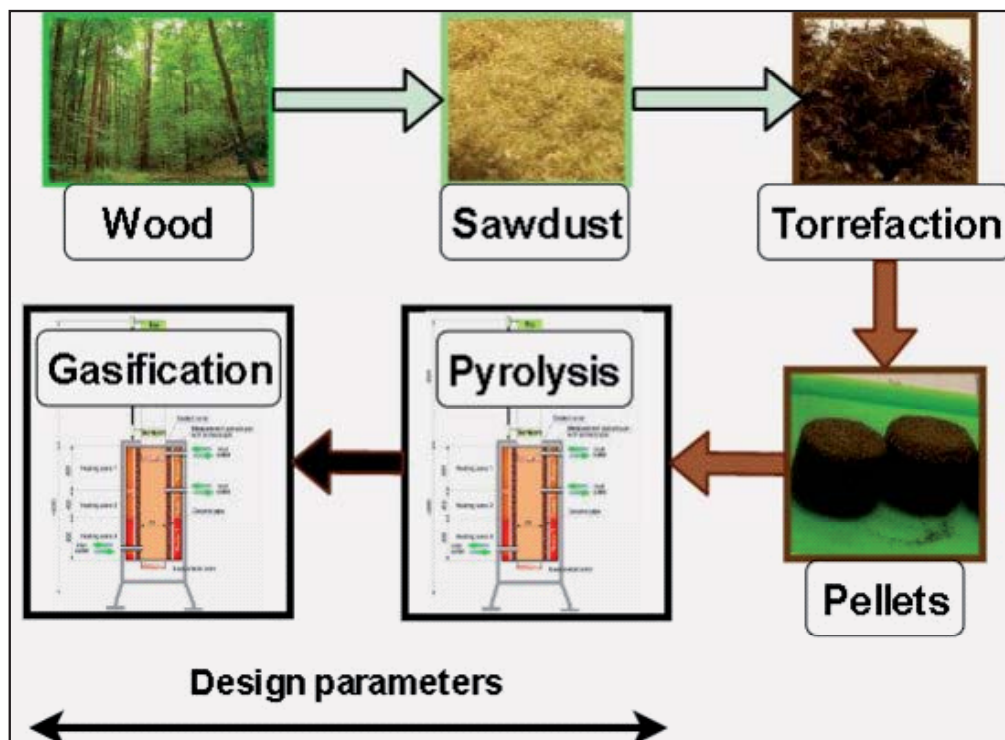


Figure 1: Scheme of torrefaction process

■ Benefits:

- Improved combustion properties (Energy content and heating content)
- No biodegradation of the product when stored.
- Increased energy density, significantly low transport cost.
- Increased grind ability, hence requires less energy during processing.
- Reduced Co₂ emissions.



THE INDIAN LEG OF THE GREAT BACKYARD BIRD COUNT RECORDS AN IMPRESSIVE 1,017 SPECIES

◎ CONTEXT:

Bird Count India supervised the India portion of the four-day event, of counting birds. Participants reported their observations to eBird (www.ebird.org/india), the world's biggest citizen research platform for biodiversity.

Key findings:

- Checklist resulted in witnessing of 1,017 species, or 75% of the total number of species known to exist in the nation.
- The house crow, common mynah, and black drongos remained the most regularly seen birds in South India.
- The Andaman coucal, red-whiskered bulbul, white-throated kingfisher, and brown shrike are among the top five new species recorded in the Andaman and Nicobar Islands.
- Kerala, Karnataka, Gujarat, and Maharashtra were the states that contributed the most data.
- In Tamil Nadu's Salem district alone, nearly 8,000 checklists were posted.
- While India had previously placed third behind the United States and Canada in number of checklists posted, it now ranks second after the United States, which has uploaded about two lakh checklists.

About eBird India

- The eBird India portal is designed for the use of birders and eBirders from India.
- Keep visiting for news and events regarding birding in India and for tips and tricks to make your eBirding more useful and rewarding.

- The eBird India portal is managed by Bird Count India, a partnership of a large number of organizations and groups working to increase our collective understanding of the distribution, abundance, and population trends of Indian birds.

PAKKAMALAI- GANGAVARAM HILLS REGION

- ◎ **CONTEXT:** Conservationists have sought better protection for the Pakkamalai and Gangavaram hills, and demand to declare the area encompassing over 7,000 hectares into a wildlife sanctuary.

Pakkamalai and Gangavaram hills

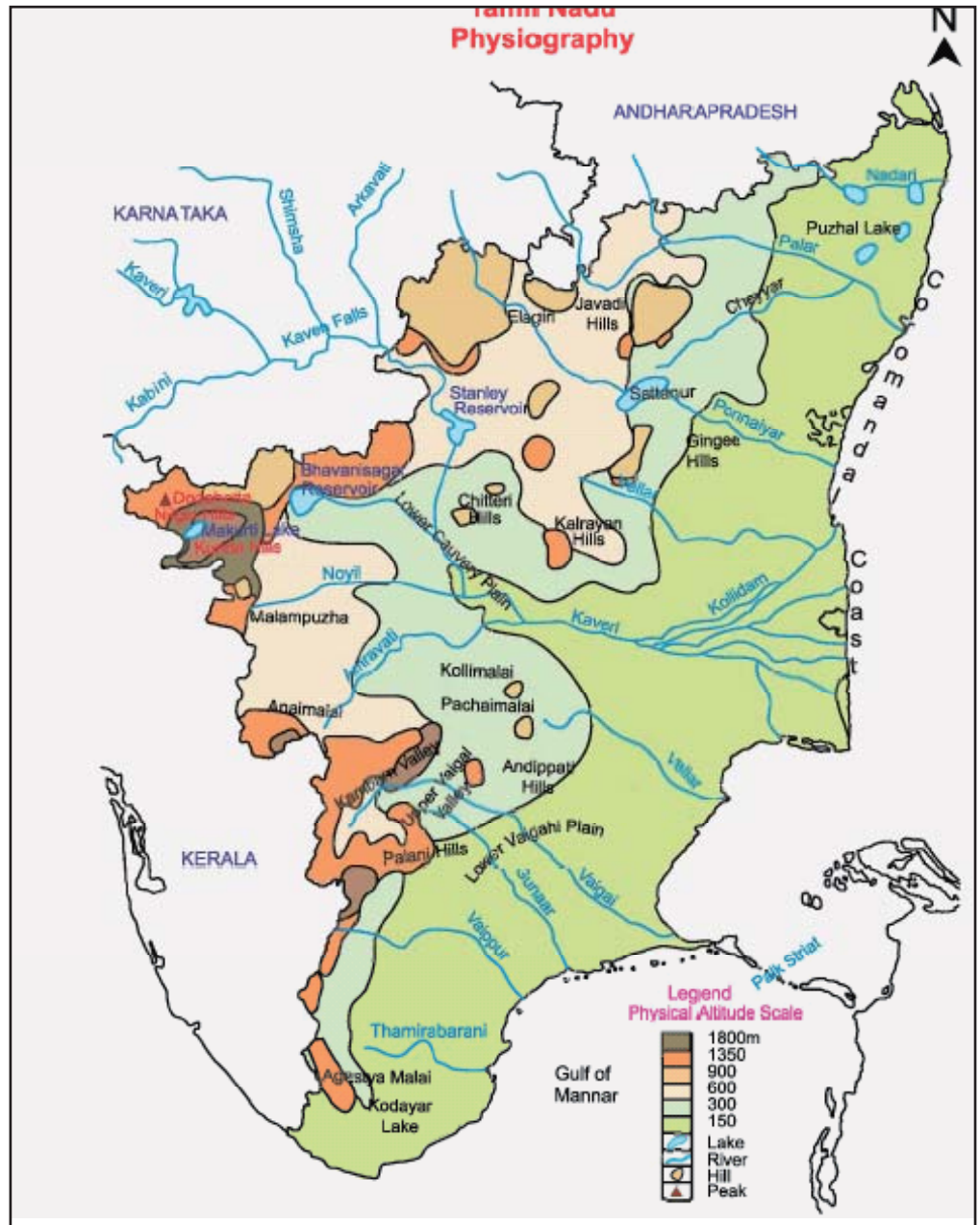
- Pakkamalai and Gangavaram hills is a biodiversity-rich area near **Gingee** in Villupuram district, Tamil Nadu.
- It is an ecologically important area in the **eastern-ghats**.
- The demand for notifying **Gingee hills** a wildlife sanctuary was first mooted in 2019.
- The area was first notified as a **Reserve Forest** in 1897 and since then it has given protection to the flora and fauna found here.

Flora and Fauna of the region:

- The forests in Pakkamalai were **unique with rocky terrain** and houses several **rare varieties** of flora from **tropical dry evergreen forests and dry deciduous forests**.
- Pakkamalai and Gangavaram have a **rich wealth of biodiversity** and are a geographically important area in the Eastern Ghats.
- The forests have a good **population of grizzled giant squirrel, grey langur, Pangolin**, and the critically endangered **golden gecko** listed under **Schedule I** of the **Wildlife Protection Act, 1972**.
- The grizzled giant squirrel was first discovered from Pakkamalai in 2019.
- There have also been recorded findings of **Bamboo pit viper and Gunthers toad**, one of the most poorly known endemic toad.
- There are rare sightings of large carnivores like **leopards and sloth bears** and different species of cave bats.
- About **21 endemic plant species** like the *Adhatodasengiana* and *Drypetes porteri* have also been recorded in the hills.

Benefit of declaring it a wildlife sanctuary:

- Declaring it as a wildlife sanctuary will certainly help protect the endangered flora and fauna in the long run apart from initiating conservation activities.
- The declaration of the hills as a wildlife sanctuary would ensure the protection of both native and endemic species besides maintaining a healthy biodiversity reserve.
- It would also ensure the protection of the living gene bank of endemic and endangered taxa.



VAQUITA PORPOISE

◎ **CONTEXT:**

Vaquita Porpoise is believed to be on the brink of extinction, with 10 or fewer still living in Mexico's Gulf of California, their sole habitat.

About Vaquita Porpoise:

- **Category:** Mammal
- **Length:** 4-5 feet
- **Habitat:** Gulf of California
- **Threat:** The biggest threat to the species is not habitat loss or genetic factors but illegal "gillnet" fishing.

- The porpoises often become entangled and die in the large mesh gillnets used by poachers hunting the totoaba, an endangered fish highly valued in some countries for its perceived medicinal properties.
- **Status:** Critically Endangered

MEASUREMENT AT BIRTH

70-78^{CM} LENGTH
7.5^{KG} WEIGHT

MAXIMUM MEASUREMENTS

1.45^{CM} MALE 1.5^{CM} FEMALE
45-50^{KG} MALE

BREEDING PERIOD


2 YEARS

VAQUITA LIFESPAN

21 YEARS

VAQUITA MARINA

PHOCOENIDAE FAMILY



**THE SMALLEST AND MOST
ENDANGERED CETACEAN IN THE WORLD**

WORLD ECONOMIC FORUM LAUNCHES ALLIANCE TO SUPERCHARGE INDIA'S CLIMATE ACTION

◎ **CONTEXT:** The World Economic Forum recently launched Indian CEO's Alliance to supercharge India's climate action and decarbonization efforts which will further aid in realizing Prime Minister Narendra Modi's ambitious five-part 'Panchamrit' pledge.

About:

- Part of the World Economic Forum's Climate Action Platform, the Alliance will continue efforts to achieve the vision outlined in the white paper released last year, "Mission 2070: A Green New Deal for a Net Zero India", on India's low-carbon transition by 2070.
- It will bring together the government, businesses, and other key stakeholders to achieve the Indian Prime Minister's ambitious five-part 'Panchamrit' pledge, which includes the country's net-zero carbon emission target by 2070.

Need:

- A just transition could generate annual business opportunities worth over \$10 trillion and create 395 million jobs by 2030 worldwide.
 - India alone could create more than 50 million net new jobs and generate over \$15 trillion in economic value.

- The government and business leaders from India have been stressing on the need for moving into the green energy space faster but in a calibrated as well as sustainable way.
- Also, a lot of emphasis is being given on green hydrogen and biofuels, while a number of consumer industries have been also vocal about using green energy sources with the right policy measures.

What are the five commitments PM Modi made at COP26?

- By 2030, India to bring its non-fossil energy capacity to 500 GW
- By 2070, India will achieve net-zero emissions
- Come 2030, India will fulfil 50 per cent of its energy requirement through renewable energy
- Come 2030, India will bring its economy's carbon intensity down to 45%
- By 2030, India will reduce 1 billion tonnes of carbon emissions from the total projected emissions

PM Modi's 'Panchamrit' on climate change

- India will reach its non-fossil energy capacity to 500 GW by 2030
- India will meet 50 per cent of its energy requirements from renewable energy by 2030
- India will reduce the total projected carbon emissions by one billion tonnes from now to 2030
- By 2030, India will reduce the carbon intensity of its economy to less than 45 per cent
- By 2070, India will achieve the target of Net Zero



MAHARASHTRA GOVERNMENT CLEARS GENE BANK PROJECT

◎ CONTEXT:

Recently, the Maharashtra Cabinet accepted and cleared the proposition of a gene bank that aims to conserve and protect the genetic resources within the state.

About Gene Bank Project:

- A first-of-its-kind project in India, it will be executed by the forest department of the state.
- The preservation also includes marine and animal diversity, along with the seeds of locally grown crops.
- This project was piloted by the Maharashtra Government's Rajiv Gandhi Science and Technology Commission.
- It will now be continued by the State Biodiversity Board, to ensure the sustenance and growth of the project.
- **Aim:** to document native natural resources and conserve them with the help of the local community that will ensure not just biodiversity conservation but also inclusion of traditional knowledge.
- The Maharashtra Gene Bank is unique because it has tried to authenticate traditional knowledge by scientific institutions such as the Indian Institute of Science Education and Research (IISER), Pune, and the National Institute of Oceanography (NIO), Goa.
- The government also sanctioned Rs 172.39 crore for implementing the action plan for the next five years.
- Seven main themes identified for the Gene Bank work:
 - Marine biodiversity;
 - local crop/seed varieties;
 - indigenous cattle breeds;
 - freshwater biodiversity;
 - grassland, scrubland and animal grazing land biodiversity;
 - conservation and management plans for areas under forest right, and
 - rejuvenation of forest areas

INDIGO USES GAGAN- FIRST AIRLINE

◎ CONTEXT:

India achieved a major landmark when the Airports Authority of India (AAI) successfully conducted a trial applied the latest technology developed by an indigenous satellite based augmentation system (SBAS) called GAGAN (GPS Aided GEO Augmented Navigation) at the Kishangarh airport in Rajasthan.

- The IndiGo aircraft flew an aircraft with an Instrument Approach Procedure (IAP) with LPV minima of 250ft, using GAGAN Service.
- India is the first country in Asia Pacific Region to achieve this.

What is GPS Aided GEO Augmented Navigation (GAGAN)?

- It is a Satellite Based Augmentation System (SBAS) implemented jointly with Airport Authority of India (AAI).
- The main objectives of GAGAN are to provide Satellite-based Navigation services with accuracy and integrity required for civil aviation applications and to provide better Air Traffic Management over Indian Airspace.
- The system will be interoperable with other international SBAS systems and provide seamless navigation across regional boundaries.
- The GAGAN Signal-In-Space (SIS) is available through GSAT-8 and GSAT-10.

- GAGAN is used to provide lateral and vertical guidance when an aircraft is approaching a runway for landing.
 - Its precision is especially useful at small airports where the instrument landing system (ILS) has not been installed.
- In India's civil aviation sector, GAGAN will modernise the airspace, reduce flight delays, save fuel and improve flight safety.



Satellite Based Augmentation System (SBAS)

- The SBAS is a navigation system, which builds on the **Global Navigation Satellite Systems (GLONASS)**, and adds to the accuracy and integrity of these navigation tools.
- For aircraft operators, both civilian and military, it means that pilots can land aircraft at smaller airports and airstrips using navigation guidance without expensive instrument-based landing systems being installed on the ground.

Some of the benefits GAGAN is expected to bring for Civil Aviation sector are:

- Safety benefits – Vertical guidance improves safety, especially in adverse weather conditions
- Reduction of circling approaches
- Environmental benefits–Approach with Vertical Guidance procedures will help facilitate better energy and descent profile management during the final approach
- Global seamless navigation for all phases of flight including arrival, departure, oceanic and en route
- Allow direct routings, multiple approaches resulting in considerable fuel savings to airlines and provide for capacity enhancement of airports and airspace



ANABOLIC STEROIDS AND ITS HEALTH IMPACTS

© **CONTEXT:** From two Tokyo Olympians being banned to Noida Police seizing fake drugs and supplements worth Rs 2 crore, anabolic steroids have often been in news.

What are anabolic steroids?


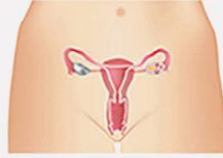



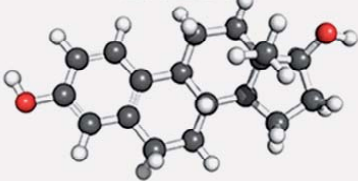





- Anabolic steroids are essentially lab-made versions of the male hormone testosterone and have a similar effect of increasing muscle mass as the natural hormone does.
- It also increases male characteristics in a person, such as facial hair and a deeper voice.
- These are, however, very different from the steroids that are prescribed by doctors for inflammations, several autoimmune diseases, or to suppress the body's immune system during a Covid-19 infection.
 - These medicines are called corticosteroids and are lab-made molecules that mimic the action of the hormone called cortisol that controls the body's stress response, metabolism, and inflammation.
- Unlike corticosteroids, anabolic steroids have limited medical use. "Anabolic steroids are mainly misused by athletes and sportspersons nowadays.
- Years ago, it was rampantly used by bodybuilders and was given to them in pudiyas.
 - Although this practice is fading away, people still take it following the advice of their gym trainers.

What are they prescribed for?

- The anabolic steroids have a very **limited medical role** and are mainly used by doctors to help patients gain weight after a severe illness or injury.
- It could also be prescribed in small doses to the elderly to build muscle mass and in some cases also helps to treat anaemia.
- Doctors may also prescribe the medicine to men who have low levels of natural testosterone.

What are the health impacts?

- Use of anabolic steroids in the short-term can cause acne and hairfall. Extended misuse of the substance can also lead to gynaecomastia (growth of breasts in men) and erectile dysfunction.
- In women, it can lead to growth of facial hair.
- It may also cause extreme anger, paranoia, and impaired judgement.
- Long-term use can lead to kidney disease and even failure, liver damage and tumours, enlarged heart, and high blood pressure.
- It can also lead to stunted growth in teenagers.

<p>REPRODUCTIVE SYSTEMS</p> <p>Female Irregular menstrual cycle; Clitoral hypertrophy; Uterine and breast atrophy; cervical and/or endometrial cancer.</p>  <p>Male Decreased endogenous androgens production; testicular atrophy; infertility; prostatic hypertrophy; prostate cancer.</p> 	<p>ENDOCRINE SYSTEMS Decreased glucose.</p> 	<p>NEUROPSYCHIATRIC/BEHAVIORAL INVOLVEMENT</p> <p>Mood swings; aggressive behavior; depression; psychosis; addiction withdrawal and dependency disorders.</p> 
<p>LIVER</p> <p>Hepatocellular damage; cholestasis peliosis; hepatis hepatoadenoma; hepatocarcinoma; increased cholesterol; decreased HDL cholesterol.</p> 	<p>ADVERSE AAS EFFECTS</p> 	<p>URINARY</p> <p>Creatinine acute renal failure; focal segmental glomerulosclerosis; membranoproliferative glomerulonephritis.</p> 
<p>CARDIOVASCULAR SYSTEMS</p> <p>Hypertension thrombosis; pro atherogenic effects; left ventricular hypertrophy ; Sudden Cardiac Death</p> 	<p>MUSCULOSKELETAL</p> <p>Early epiphyseal closure in adolescents; increased rate of muscle strains/ruptures; increased risk of muskulotendinous</p> 	<p>INTEGUMENT</p> <p>Acne, alopecia, hirsutism, male pattern baldness, edema.</p>  <p>LARYNX Deepening of the voice.</p> 

U.S. REPORTS ITS FIRST HUMAN CASE OF H5 BIRD FLU

© **CONTEXT:**

Centers for Disease Control and Prevention (CDC) recently said that the first known human case of H5 bird flu in the United States has appeared in a person in Colorado.

About H5 Bird Flu:

- Bird flu or avian influenza is a disease which is caused by avian influenza **Type A viruses** found naturally in the wild birds worldwide.

- The virus can infect domestic poultry which includes chickens, ducks and turkeys.
- **Avian Influenza type A viruses** which are classified based on two proteins on their surfaces:
 - Hemagglutinin(HA)
 - Neuraminidase(NA)
- There are about 18 HA subtypes and 11 NA subtypes.
- Several combinations of these two proteins are also possible e.g., **H5N1, H7N2, H9N6, H17N10, etc.**
- The virus was first detected in geese in China in 1996.
- **Symptoms of avian influenza:** Fever, cough, sore throat, nausea, abdominal pain, muscle aches, diarrhea, vomiting Severe respiratory illness (respiratory distress, viral pneumonia, respiratory failure), Neurologic changes (altered mental status, seizures).
- **Risk groups:** Children and adults below 40 are seen to be the most affected and mortality was high in 10-19 years old.

Bird flu and danger to humans

Bird flu, or avian flu, has a high mortality rate in humans, but as of yet, can ~~not~~ be transmitted from person to person. ... WHO, February 20th, 2006: "Human infections remain a rare event."

Infection with type A virus H5N1

- 1 Most virulent bird flu virus; mutates rapidly, altering its genetic material
- 2 Humans infected by close contact with live infected poultry
- 3 Birds carry virus and excrete it in feces, which dries, becomes pulverized and then can be inhaled or taken in by touch
- 4 Humans have no immunity against this virus

Reason for concern

Humans infected with bird flu could serve as a host for a new genetic subtype that can be transmitted from person to person

Might start influenza pandemic

Symptoms

Similar to common influenza

- Fatigue
- Fever
- Conjunctivitis
- Sore throat
- Cough
- Muscle aches

When untreated

Rapid deterioration; viral pneumonia leading to respiratory distress, kidney failure, multi-organ failure, death

Source: World Health Organization - Graphic: Jutta Scheibel, Morten Lyhne © 2004 KPH

Is it the first time?

- This is the second human case associated with this specific group of H5 viruses that are currently predominant, and the first case in the United States.

- The first case internationally occurred in December 2021 in the United Kingdom in a person who did not have any symptoms and who raised birds that became infected with H5N1 virus.
- More than 880 human infections with earlier H5N1 viruses have been reported since 2003 worldwide.
 - However, the predominant H5N1 viruses now circulating among birds globally are different from earlier H5N1 viruses.

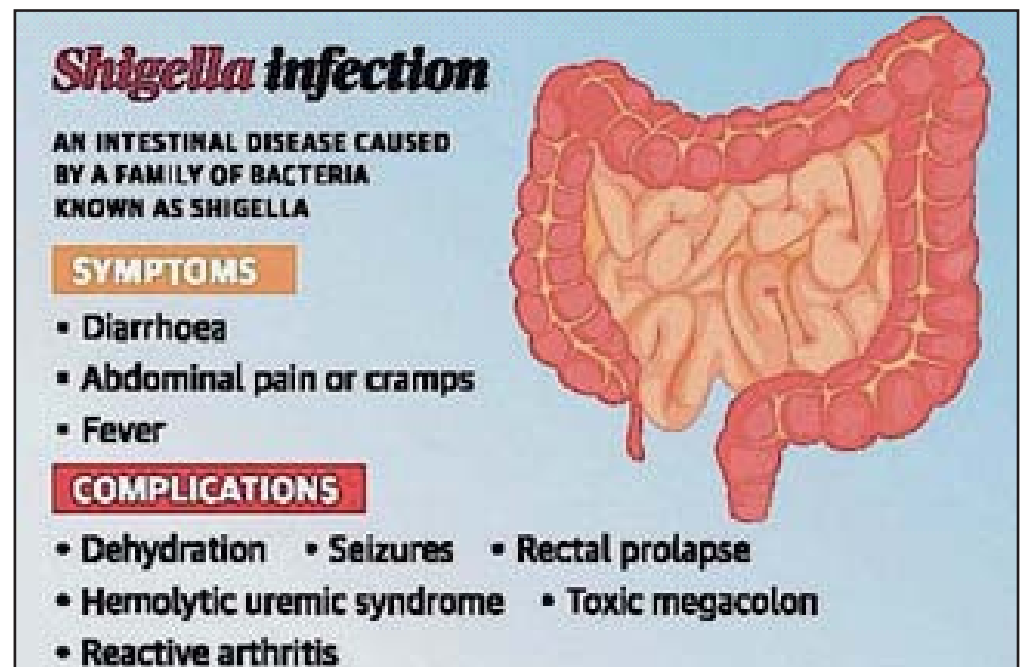
SHIGELLA INFECTION IN KERALA

◎ CONTEXT:

The Kerala health department recently identified *Shigella* bacteria as the cause for the food poisoning incident in Kasaragod, which claimed the life of a 16-year-old girl and led to 30-odd others being admitted to hospital.

What is Shigella?

- Shigella is a bacterium that belongs to the **enterobacter family** — a group of bacteria that **reside in the intestine**, not all of which cause disease in humans.
- It mainly affects the intestine and **results in diarrhoea**, sometimes bloody, stomach pain, and fever.
- The infection spreads easily as it takes only a **small number of bacteria to make someone ill**.
- It is a **food- and water-borne infection**, and can happen when someone consumes contaminated food.
- The disease is **easily spread** by direct or indirect contact with the excrement of the patient.



Shigella infection

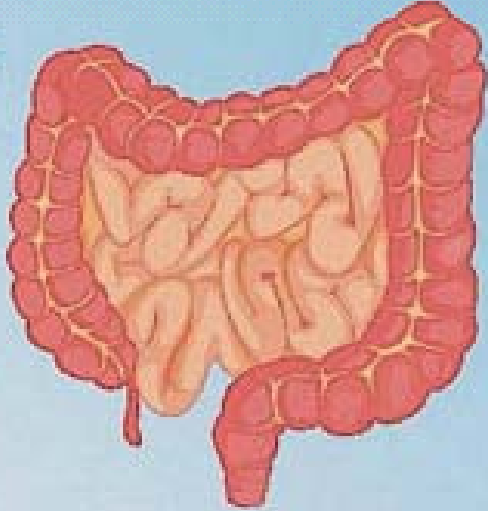
AN INTESTINAL DISEASE CAUSED BY A FAMILY OF BACTERIA KNOWN AS SHIGELLA

SYMPTOMS

- Diarrhoea
- Abdominal pain or cramps
- Fever

COMPLICATIONS

- Dehydration
- Seizures
- Rectal prolapse
- Hemolytic uremic syndrome
- Toxic megacolon
- Reactive arthritis



What are the symptoms?

- Diarrhoea (often containing blood or mucous)
- Stomach pain or cramps

- Fever
- Nausea or vomiting

How widespread is Shigella infection?

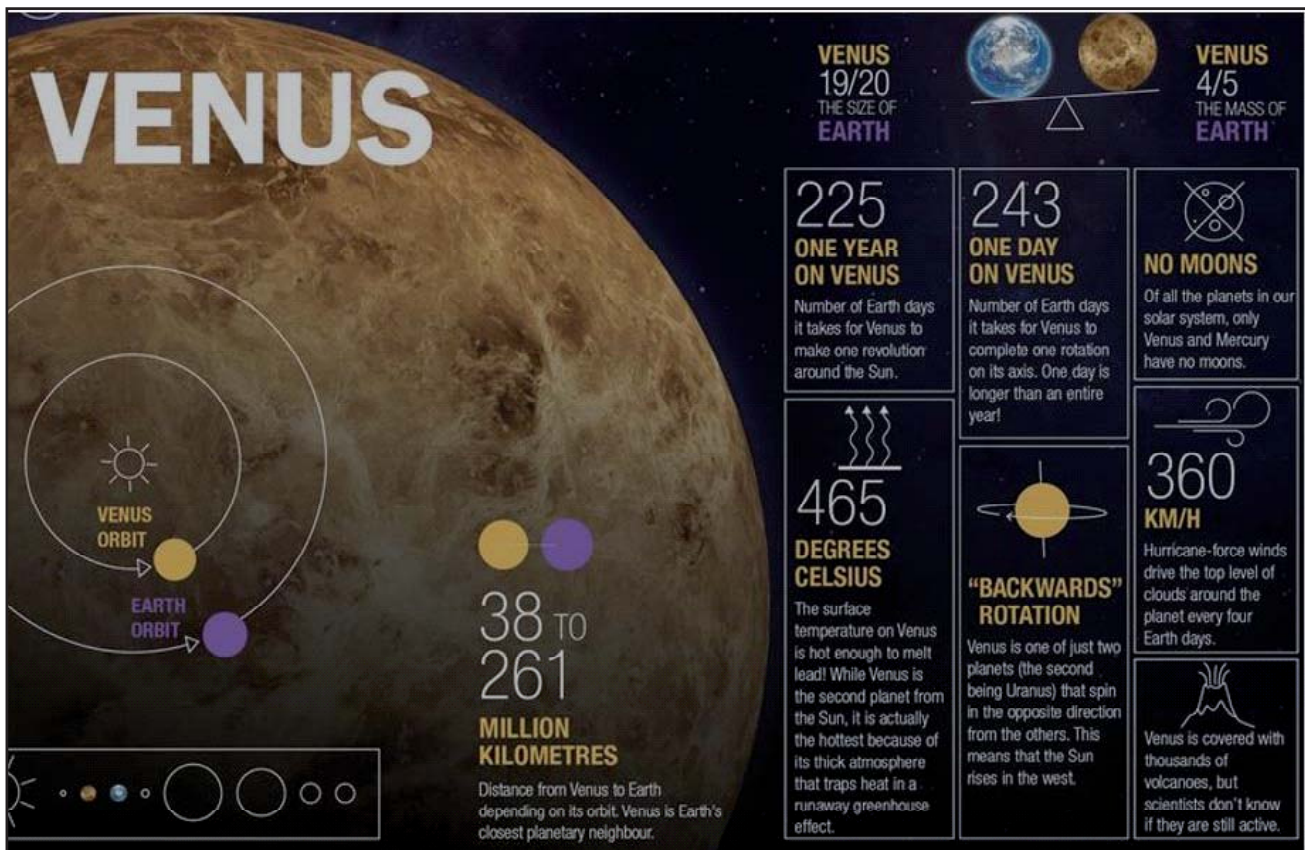
- Shigellosis happens, but it is **not a very common infection**.
- Shigella outbreaks appear to be exacerbated during pregnancy and in children less than five years of age, and in those with weakened immune systems.
- There are **four types of Shigella bacteria** that affect humans — Shigella sonnei, Shigella flexneri, Shigella boydii, and Shigella dysenteriae.
 - The fourth type causes the most severe disease because of the toxin it produces.

ISRO PLANS MISSION TO VENUS BY DEC. 2024

◎ **CONTEXT: THE INDIAN SPACE RESEARCH ORGANISATION (ISRO) IS PLANNING TO LAUNCH A SPACECRAFT TO VENUS IN DECEMBER 2024.**

Key-objectives of the mission

- To study what lies below the surface of Venus.
- To study Venus' atmosphere, which is toxic and corrosive in nature as clouds of sulfuric acid cover the planet



About Venus

- Venus is the second planet from the sun and the hottest planet in the solar system with a surface temperature of 500C – high enough to melt lead.

- The planet's thick atmosphere has cranked the surface pressure up to 90 bars.
- A single Venusian rotation takes 243.0226 Earth days. That means a day lasts longer than a year on Venus, which makes a complete orbit around the sun in 225 Earth days.
- The Venusian planetary core has a diameter of about 4,360 miles (7,000 km), comparable to Earth's core.
- Venus is one of just two planets that rotate from east to west. Only Venus and Uranus have this "backwards" rotation.

Historic missions to Venus

- **Magellan** – a NASA mission that ended in 1994.
- **Venus Express**– A European mission- focused on atmospheric science.
- **Akatsuki**– Japanese spacecraft- focused on atmospheric science.

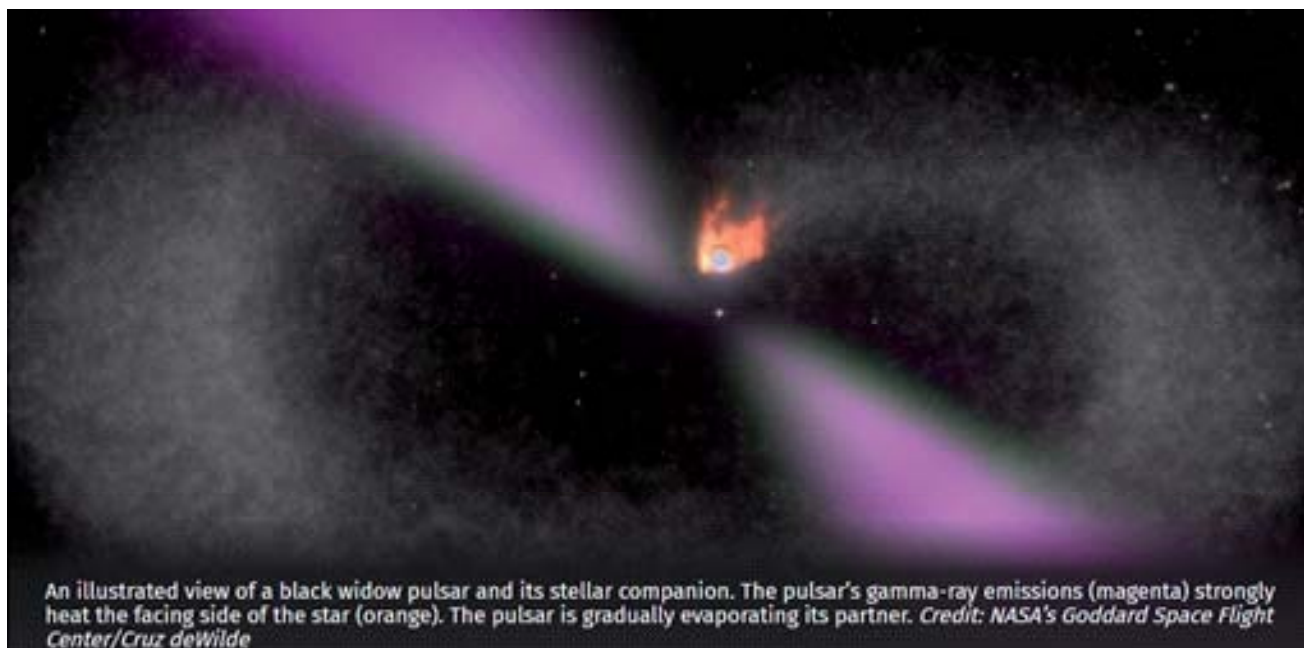
RARE 'BLACK WIDOW' BINARY STAR WITH SHORTEST ORBIT EVER IDENTIFIED

◎ CONTEXT:

Scientists have discovered a rare "triple black widow" system -- a pair of stars that rapidly circle each other before one is consumed by the other -- located some 3,000 light-years away.

About new discovery:

- A black widow binary is a unique system that consists of a pulsar that is circling and slowly consuming a smaller companion star.
- Astronomers have previously identified about two dozen black widow binaries in the Milky Way galaxy but the newest candidate has the shortest orbital period yet identified.
- Named ZTF J1406+1222, the system has a pulsar and a companion star that circle each other every 62 minutes.
- The system derives its name from the "black widow" spiders, in which the female eats the male after mating.



An illustrated view of a black widow pulsar and its stellar companion. The pulsar's gamma-ray emissions (magenta) strongly heat the facing side of the star (orange). The pulsar is gradually evaporating its partner. Credit: NASA's Goddard Space Flight Center/Cruz deWilde

- Another thing that makes the system unique apart from the short orbital period is the fact that it seems to host a third far-flung star that orbits the other two every 10,000 years.
- The study used HiPERCAM, a high-speed camera developed by researchers at the University of Sheffield that can take more than 1,000 optical images per second, to find the exotic triple black widow.

Pulsars:

- Pulsars are rapidly spinning neutron stars that are the collapsed cores of massive stars.
- They have an incredibly fast rotational period, spinning around every few milliseconds and emitting flashes of high energy gamma and X-rays while doing so.
- Typically, pulsars spin down and die quickly as they burn huge amounts of energy in a short amount of time.
 - But every once in a while, a passing star can 'refuel' them.
- As a star nears a pulsar, the latter's gravity pulls material off the star, providing new energy to spin the pulsar back up.
- This 'reignited' pulsar then starts reradiating energy that strips the star further until it is completely destroyed.
- Every black widow binary discovered to date was detected due to the gamma and X-ray flashes from the pulsar.
 - But for this system, Burdgecam upon it through the optical flashing of the companion star.

MONKEYPOX, A SMALLPOX-LIKE DISEASE HAS BEEN REPORTED IN THE UK

◎ CONTEXT:

Health authorities in the United Kingdom recently have confirmed a case of monkeypox, a rare viral infection similar to smallpox, in an individual who recently travelled to that country from Nigeria.

Monkey Pox:

- Monkeypox virus is an orthopoxvirus that causes a disease with symptoms similar, but less severe, to smallpox.
- While smallpox was eradicated in 1980, monkeypox continues to occur in countries of Central and West Africa.
 - Two distinct clade are identified: the West African clade and the Congo Basin clade, also known as the Central African clade.
- Monkeypox is a **zoonosis**- a disease that is **transmitted from animals to humans**.
- Cases are often found close to **tropical rainforests** where there are animals that carry the virus.
- Evidence of monkeypox virus infection has been found in animals including **squirrels, Gambian poached rats, dormice, different species of monkeys and others**.
- **Detection of viral DNA by polymerase chain reaction (PCR)** is the preferred laboratory test for monkeypox.
 - The best diagnostic specimens are directly from the rash – skin, fluid or crusts, or biopsy where feasible.
 - Antigen and antibody detection methods may not be useful as they do not distinguish between orthopoxviruses.

- **Symptoms:** Monkeypox presents with fever, an extensive characteristic rash and usually swollen lymph nodes.
 - It is important to distinguish monkeypox from other illnesses such as chickenpox, measles, bacterial skin infections, scabies, syphilis and medication-associated allergies.
- According to the WHO, the proportion of patients who die has varied between 0 and 11% in documented cases, and has been higher among young children.



Outbreaks:

- Human monkeypox was **first identified in humans in 1970** in the Democratic Republic of the **Congo** (then known as Zaire) in a 9-year-old boy in a region where smallpox had been eliminated in 1968.
- Since then, most cases have been reported from rural, rainforest regions of the Congo Basin, particularly in the Democratic Republic of the Congo, where it is considered to be endemic.
- According to the WHO, **15 countries on four continents** have so far reported confirmed cases of monkeypox in humans.
- Locally acquired cases have been confirmed in the DRC (which has the largest incidence of the infection in the world), Central African Republic, Republic of the Congo, Gabon, Cameroon, Nigeria, Côte d'Ivoire, Liberia, and Sierra Leone.
- Imported cases have been found in South Sudan and Benin in Africa, and in the United States, UK, Israel, and Singapore.

PCR (Polymerase Chain Reaction):

- PCR (Polymerase Chain Reaction) is a revolutionary method developed by Kary Mullis in the 1980s.
- PCR is based on using the ability of DNA polymerase to synthesize new strand of DNA complementary to the offered template strand.
- Because DNA polymerase can add a nucleotide only onto a preexisting 3'-OH group, it needs a primer to which it can add the first nucleotide.
- This requirement makes it possible to delineate a specific region of template sequence that the researcher wants to amplify.
- At the end of the PCR reaction, the specific sequence will be accumulated in billions of copies.

TOMATO FLU AND IT AFFECTS.

◎ CONTEXT:

Tamil Nadu has ramped up surveillance at its borders in the wake of “tomato flu” cases being detected in Kerala.

About Tomato Flu:

- Tomato flu is a viral disease, which causes red rashes, skin irritation, and dehydration.
- The fever is affecting children below the age of five in Kerala.
- The flu that gets its name because of the red blister it causes.
- Around 80 children have so far been infected with the Tomato flu.
- There is no confirmation yet on whether the Tomato Fever is a viral fever or is an after-effect of chikungunya or dengue fever.

■ Symptoms of Tomato flu:

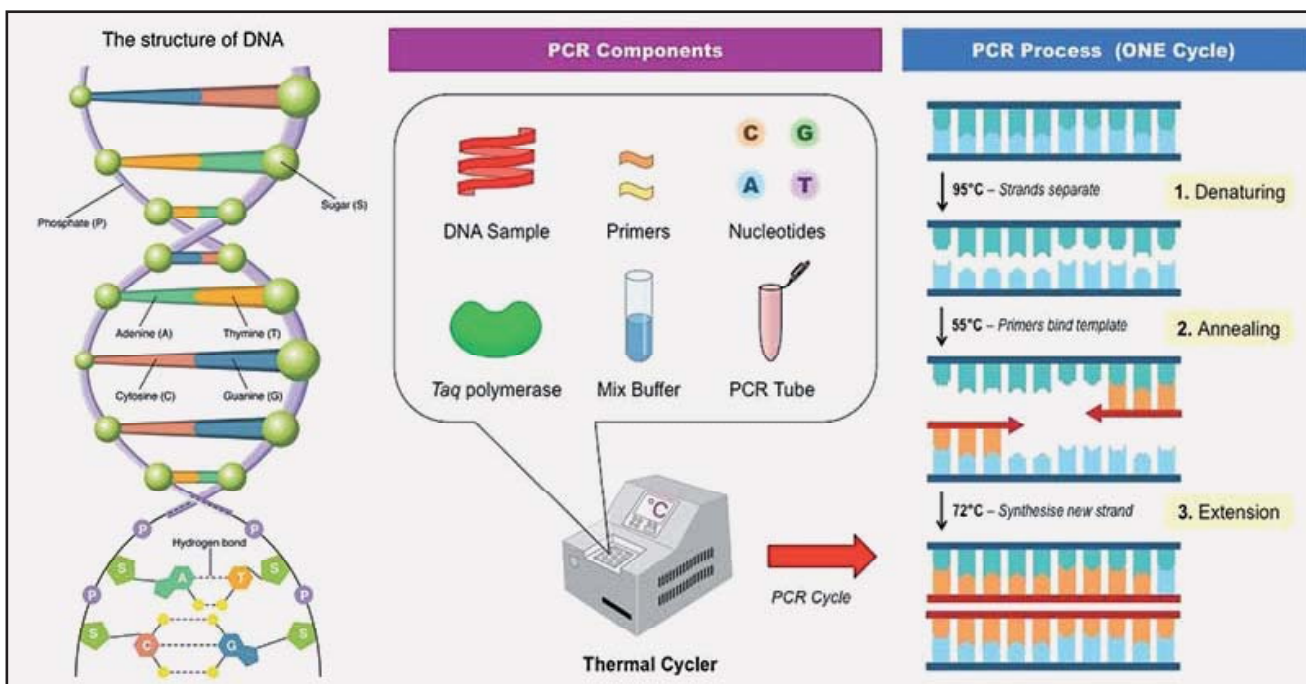
- The main symptoms include high fever, rashes, and skin irritation. Hand and leg skin colour can change with rising blisters.
- Children might also experience abdominal cramps, body aches, fatigue, nausea, vomiting, or diarrhoea.

■ Treatment of Tomato flu:

- If a child shows symptoms, they should be taken directly to a doctor.
- Children are advised to be kept hydrated.
- If infected, the child must avoid scratching the blisters and maintain cleanliness and hygiene.

Preventive measures:

- Contact doctor immediately
- Do not scratch the blisters



- Stay hydrated by drinking boiled water.
- Maintain proper hygiene.
- Avoid close contact with the infected person.
- Use warm water for bathing
- Take proper rest to avoid its long-lasting effect

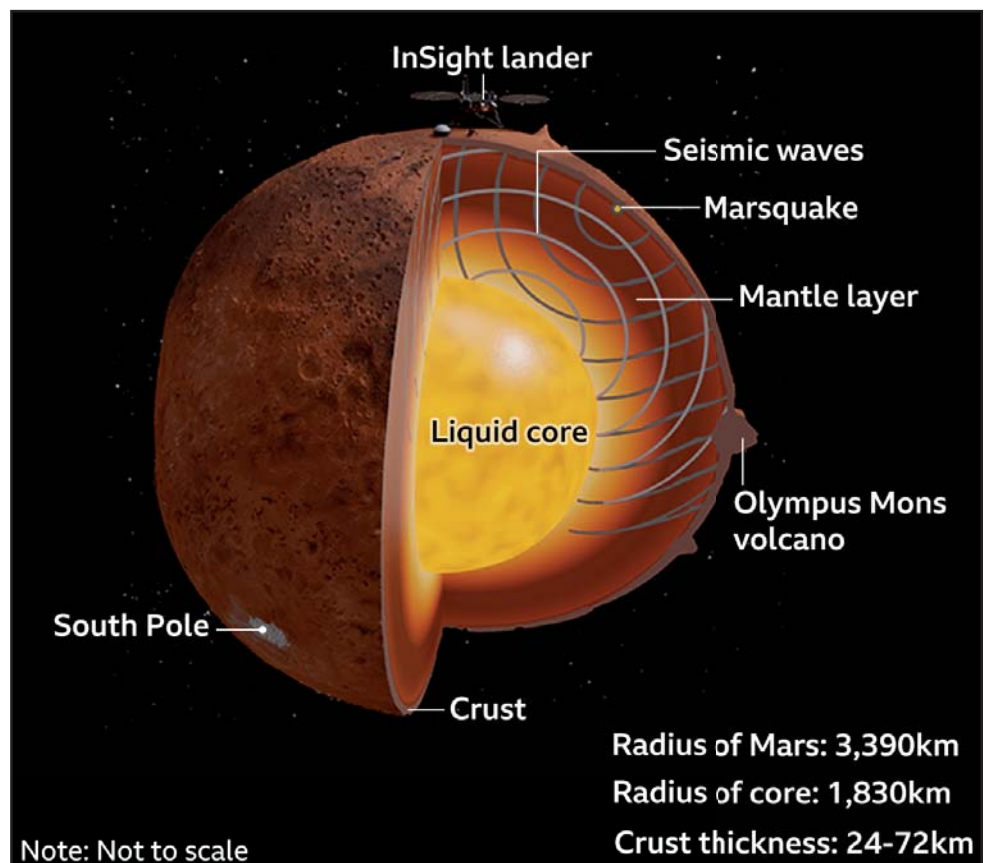
WHAT IS A 'MARSQUAKE', AND WHAT CAUSES IT?

◎ CONTEXT:

NASA's InSight lander has recently detected a quake on Mars, the largest ever observed on another planet.

About Marsquake:

- The **InSight rover** first landed on Mars in November 2018, and has since heard 1,313 quakes.
- A magnitude 5 quake shook the surface of Mars, the strongest temblor ever detected not only on Mars but on any planet besides Earth.
 - The marsquake surpassed the previous record-holder, a 4.2-magnitude quake that took place in August 2021.
- On Earth, **quakes are caused by shifts in tectonic plates. Mars, however, does not have tectonic plates, and its crust is a giant plate.**
 - Therefore, NASA notes, 'marsquakes' are **caused due to stresses that cause rock fractures or faults in its crust.**



About InSight rover:

- InSight (**Interior Exploration using Seismic Investigations, Geodesy and Heat Transport**), is a Mars lander which is the **first robotic explorer to study the crust, mantle and core of Mars**.
- The InSight rover has **two primary science objectives**:
 - to understand the formation and evolution of the terrestrial planet by investigating the interior structure and processes of Mars and
 - to determine the present level of tectonic activity and meteorite impact rate on the planet
- Apart from helping learn how Mars was formed, understanding its patterns will also help prepare for human exploration of the planet.
- It uses its instruments to dig deep beneath the surface of the red planet and seek the 'fingerprints' of the process that formed the planet.
- To do this, it measures the planet's "vital signs": seismology, heat flow and precision tracking.

Do you know?

- InSight is not looking for life on Mars, but is studying what Mars is made of, how its material is layered, and how much heat seeps out of it.
- Some missions studying the possibility of life on Mars include UAE's Hope, China's Tianwen-1, and NASA's Perseverance.

PROTECTED MOBILITY VEHICLES

◎ CONTEXT:

The Army has floated a Request for Information (RFI) to purchase Protected Mobility Vehicles (PMV) for high-altitude areas and for deserts and plains.

Protected Mobility Vehicles (PMV):

- The PMV is essentially a **wheeled armoured personnel carrier**.
- It provides protection to the soldiers travelling inside the vehicle from mine blasts and sudden attack by small arms.
- The troops in these vehicles could be members of any quick reaction team heading to a point of conflict, or members of patrolling parties heading to border areas.
- They could also be members of a reconnaissance squad operating behind enemy lines or in forward positions of own troops.

Request for Information (RFI)

- The Army floated an RFI for information from vendors for PMV to deploy in areas above the height of 4000 metres and for deserts and plains.
- The detailed instructions given by the Army along with the RFI specifies that these vehicles should be wheeled, 4X4 drive mode and should have automatic transmission.
- These vehicles should be able to carry ten personnel excluding the driver and co-driver with each person carrying a combat load of not less than 30 kg.

Technical specifications:

- Protection type: The PMVs must have ballistic protection and should be able to protect the vehicle from grenade and mine blasts.
- Speed: It should have a maximum speed of 90 km on road and 40 km per hour on cross country terrain.
- Temperature: They should be able to operate in temperature range of 40 degree centigrade to minus 15 degree in high-altitude areas.
- Weapon mount: The vehicles are required to have a weapon mount to enable a 7.62 mm Light Machine Gun (LMG) to be fitted and a turret with 360 degree rotation for a LMG.
- Firing ports: It is also required to have 11 firing ports with five each on the starboard and port side of the vehicle and one at the rear.
- The PMV should be able to ford in water with depth of 1000 mm without any special preparation.

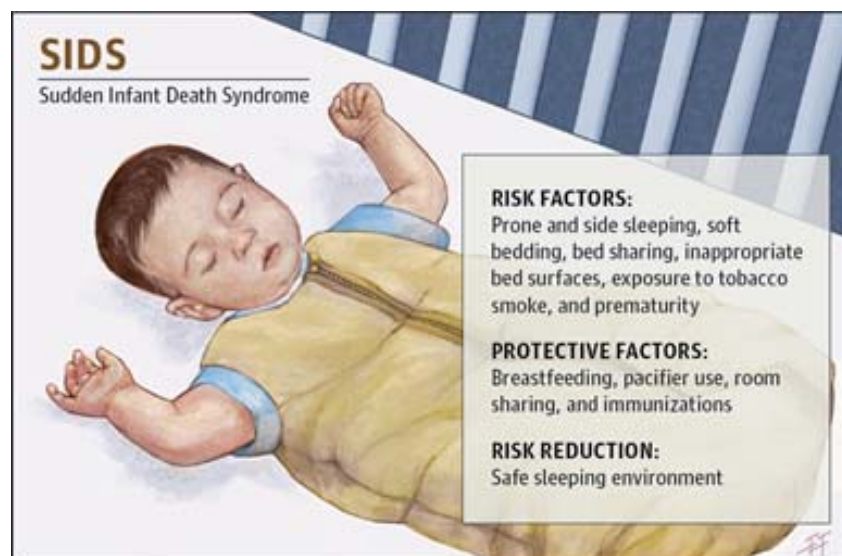
WHAT IS SUDDEN INFANT DEATH SYNDROME?

◎ **CONTEXT:**

A team of researchers in Australia has identified a biochemical marker in the blood that could help identify newborn babies at risk for the Sudden Infant Death Syndrome (SIDS).

Sudden Infant Death Syndrome (SIDS):

- Sudden infant death syndrome is the unexpected death of an apparently healthy infant.
- It usually occurs while the baby is asleep, although in rare cases, it can also occur while the child is awake.
- The condition is also called "cot death".
- Newborn babies delivered prematurely or with low weight at birth are believed to be at a greater risk of SIDS.
- The exact cause of SIDS is unknown, although revelations from the new research look promising.
- According to the NHS website, parents can reduce the risk of SIDS by not smoking while pregnant or after the baby is born and ensuring that the baby is placed on their back when they sleep.



Key findings of the research:

- According to the findings of the research, babies **who died of SIDS showed lower levels of the butyrylcholinesterase (BChE) enzyme** shortly after birth.

A low level of the BChE enzyme affects a sleeping infant's ability to wake up or respond to their environment.

The role of BChE:

- BChE plays a major role in the **brain's arousal pathway**.
- The researchers believe its deficiency likely indicates an arousal deficit, which **reduces an infant's ability to wake or respond to the external environment**, causing vulnerability to SIDS.
- The enzyme is an important part of the autonomic nervous system of the body and controls unconscious and involuntary functions.

SECTION: D

(CONCEPTS)

CURRENT AFFAIRS

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Urban Heat island:

- An urban heat island occurs when a city experiences much warmer temperatures than nearby rural areas.
- The difference in temperature between urban and less-developed rural areas is understood as how well the surfaces in each environment absorb and hold heat.

Wholesale Price Index (WPI)

- WPI is an index that measures and tracks changes in prices of goods; at the factory, *mandi*, and essentially at various levels in the supply chain, before they reach the end consumer (retail level).
- In India, WPI is prepared by Office of Economic Adviser, Ministry of Commerce and Industry on a weekly basis.
- The base year is 2011-12.

Heat Wave:

Heat Wave is simply, a continuous spell of abnormally hot weather. Heat wave need not be considered till maximum temperature of a station reaches at least 40° C for Plains and at least 30° C for Hilly regions.

Nordic Region:

- The Nordic Region consists of Denmark, Norway, Sweden, Finland, and Iceland, as well as the Faroe Islands, Greenland, and Åland.

Article 239AA:

- Article 239AA of the Constitution says the Council of Ministers will aid and advise the L-G in matters where the Legislative Assembly has the power to make laws except where the L-G can exercise discretion.

Labour Force Participation Rate

- According to the CMIE, the labour force consists of persons aged 15 years or older, who are either employed or unemployed and actively looking for a job.
- LFPR represents the “demand” for jobs in an economy.

Bio-fertilisers and organic fertilisers:

- Organic fertilizers comprise a variety of plant-derived materials that range from fresh or dried plant material to animal manures and litters to agricultural by-products.
- ‘Biofertilizer’ is a substance which contains living microorganism which, when applied to seed, plant surfaces, or soil, colonizes the rhizosphere or the interior of the plant and promotes growth by increasing the supply or availability of primary

nutrients to the host plant. Biofertilizers add nutrients through the natural processes of fixing atmospheric nitrogen, solubilizing Phosphorus, and stimulating plant growth through the synthesis of growth promoting substances.

Black hole:

- A black hole is formed when stars collapse, leading to a space in the universe with an escape velocity — the speed at which an object must travel to override a planet or an object’s gravitational force. The light cannot go out because the gravity inside a black hole is very strong as a result of a lot of matter being squeezed into a small space.

Chaityagriha:

- The main cave is the huge prayer/assembly hall, known as a chaityagriha, that’s believed to date back to the 1st century BC. It has a magnificent roof made out of carved teak wood, rows of pillars decorated with sculptures of men, women, elephants, and horses, and a large sun window at the entrance that deflects rays of light towards the stupa at the rear.

Viharas:

- This is the Buddhist monastery that also contained a residence hall for the monks.

Autism Spectrum Disorder:

- Autism spectrum disorder (ASD) is a developmental disability that can cause significant social, communication and behavioral challenges.
- It can involve a wide range of symptoms and skills. ASD can be a minor problem or a disability that needs full-time care in a special facility

Neurodegenerative and disorder:

- The neurodegenerative movement disorder Parkinson’s disease occurs when the dopamine-producing cells in a part of the brain called substantia nigra start to deteriorate. Parkinson’s disease, a progressive nervous system disorder, primarily affects movement due to the loss of specific brain cells.
- Symptoms: The symptoms of the disease are tremor in limbs, stiffness, problems in coordinating movements, posture problems, and sleep problems.
- Some patients may also report behavioural changes like: Depression, Fatigue, Memory difficulties, and Sleep problems.

❑ Torrefied biomass:

- Torrefied biomass pellets are regarded as one of the most efficient biofuel manufacturing processes to produce the coal substitute known as torrefied pellets.
- In the torrefaction process, biomass is processed at the temperature of 250-350°C in the absence of oxygen atmosphere, decomposing the Biomass components, preserving energy content so that the energy density of the torrefied biomass becomes in pellet or briquette form which is much higher than other solid biomasses in trade.

❑ SSLV:**Small Satellite Launch Vehicle (SSLV)**

- SSLV has been designed to meet "Launch on Demand" requirements in a cost-effective manner.
- It is a 3 stage all solid vehicle and it is the smallest vehicle at 110-ton mass at ISRO.
- It can carry satellites weighing up to 500 kg to a low earth orbit while the tried and tested PSLV can launch satellites weighing in the range of 1000 kg.
- It will take only 72 hours to integrate, unlike the 70 days taken now for a launch vehicle.

❑ Gene Bank:

- A bank to document native natural resources and conserve them with the help of the local community that will ensure not just biodiversity conservation but also inclusion of traditional knowledge, is known as 'Gene Bank'
- Seven main themes identified for the Gene Bank work:
- Marine biodiversity; local crop/seed varieties; indigenous cattle breeds; freshwater biodiversity, grassland, scrubland and animal grazing land biodiversity, conservation and management plans for areas under forest right, rejuvenation of forest areas.

❑ Light Pollution

- The inappropriate or excessive use of artificial light – known as light pollution – can have serious environmental consequences for humans, wildlife, and our climate.

❑ Ecologism:

- An environmental philosophy that reinvent the relationship between Nature and human beings; these philosophies are shallow and deep ecologism.

❑ Fundamental Rights:

- Rights which are fundamental to the human existence, limiting the power of the democratically elected government is known as 'Fundamental Rights'.

❑ Amicus Curie:

- Amicus Curiae, which literally translates as friend of the court, is a neutral lawyer appointed by the court to assist it in cases which require specific expertise.

❑ Cool off period:

- Cooling-off period is the length of time for which a retired civil servant is prohibited from accepting commercial employment.

❑ Mob lynching:

- It is an inhuman act which involves a group of violent people attacking and lynching a person or a group of persons, causing even their death.

❑ Desertification:

- According to UNCCD desertification is defined as "land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities".

❑ Delimitation:

- The procedure to demarcate the constitutional boundaries of country as a whole, a particular state or a particular region, for national level, state level and local level election. It is done by the 'Delimitation Commission'.

❑ Interstate council:

- A recommendatory body to investigate and discuss the subject of common interests between Union and state(s) or among the two or more state, for better coordination of policies.

❑ Primary species:

- Species which establish a new ecosystem in the first place in a barren rock or land under harsh condition, also known as Simple species. these species are found at the Primary state of ecological succession.

❑ Stunting:

- Stunting is the impaired growth and development that children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation.

- ❑ **E-waste:**
 - E-waste is short for Electronic-Waste and the term is used to describe old, end-of-life or discarded electronic appliances. It includes their components, consumables, parts and spares.
- ❑ **Open-source technology:**
 - Technology that has free availability of the source code to every user or developer for usage, modification and redistribution, is referred as 'Open Technology'.
- ❑ **Rupee convertibility:**
 - Convertibility is the ease with which a country's currency can be converted into gold or another currency through global exchanges. India's rupee is a partially convertible currency—rupees can be exchanged at market rates in certain cases, but approval is required for larger amounts.
- ❑ **Gig economy:**
 - A gig economy is a free market system in which temporary positions are common and organizations hire independent workers for short-term commitments. Non-traditional or gig work consists of income-earning activities outside of traditional, long-term employer-employee relationships.
- ❑ **E-commerce:**
 - Electronics platform to buy and sell goods and services, or to perform commercial activities is known as E-commerce.
- ❑ **Social Security:**
 - Social security is a measure to provide financial and economic support to the marginalized and depressed class of the society to protect their social, economical and political rights.
- ❑ **Vijaynagar architecture:**
 - The form of Architecture which had emerged during medieval period, specifically near the Vijaynagar kingdom, with certain unique characteristics like, Kalyan mandap.
- ❑ **Neolithic Phase:**
 - The Neolithic Period, also called the New Stone Age, is the final stage of cultural evolution or technological development among prehistoric humans.
- ❑ **Tropical Cyclones:**
 - Cyclones which originates in the tropical region (23.5°N – 23.5°S), are known as tropical cyclone. The major cause behind the formation of tropical cyclones is development of low pressure region over the ocean due to heating effect during summer.
- ❑ **TFR: Total Fertility Rate (TFR)** is defined as the average number of children that would be born to a woman if she experiences the current fertility pattern throughout her reproductive span (15-49 years).
- ❑ **VP Network**
 - A Virtual Private Network (VPN) creates a secure private network from a public internet connection.
 - Simply put, VPNs help you hide your internet protocol (IP) address so your online actions are virtually untraceable.
 - A VPN encrypts your connection to provide greater privacy as it prevents others from seeing the data you're transferring.
- ❑ **Magnetosphere:**
 - The area in the space under the influence of Earth's magnetic field is known as magnetosphere.
- ❑ **Pulsar:**
 - Pulsars are rapidly spinning neutron stars that are the collapsed cores of massive stars.
 - They have an incredibly fast rotational period, spinning around every few milliseconds and emitting flashes of high energy gamma and X-rays while doing so.
- ❑ **Black Widow Binary Star:**
 - A black widow binary is a unique system that consists of a pulsar that is circling and slowly consuming a smaller companion star.
- ❑ **Crypto-currency:**
 - Crypto Currency is a type of digital or virtual currency which is concealed, secure and impossible to counterfeit. A crypto currency is a medium of exchange that is digital, encrypted and decentralized.
- ❑ **Ethanol Blending:**
 - Blending of Ethanol with petroleum and diesel to reduce the carbon emission through vehicular source.
- ❑ **RFID:**
 - Radio Frequency Identification (RFID) is a technology that uses radio waves to passively identify a tagged object. It is used in several commercial and industrial applications, from tracking items along a supply chain to keeping track of items checked out of a library.

▣ **Universal Basic Income:**

- A subsistence level of income that is necessary to fulfill the basic needs for living like nutritious food, health and education etc., are termed as Basic Income. Availability of the basic income to every citizen universally is known as Universal Basic Income.

▣ **Biofuel:**

- A hydrocarbon fuel that is produced directly or indirectly from an organic matter is known as Biofuel.

▣ **Hyperloop**

- Hyperloop is a new form of ground transport currently in development by a number of companies, which could see passengers travelling at 700 miles an hour in floating pods within low-pressure tubes.
- The pods carrying passengers travel through tubes or tunnels from which most of the air has been removed to reduce friction.
- Rather than using wheels like a train or car, the pods are designed to float on air skis, using the same basic idea as an air hockey table, or use magnetic levitation to reduce friction.

▣ **Compensation Cess (GST):**

- The cess collected to provide compensation by the central government to the state to bridge the deficit in revenue collection due to introduction of Goods and Service Tax, is known as Compensation Cess.

▣ **Food inflation:**

- Inflation which arises in the food basket of the country is known as food inflation. The food inflation takes place due to failure of monsoon, post-harvest losses and supply chain disturbances etc.

▣ **Front running:**

- Front-running is illegal and unethical when a trader acts on inside information. A straightforward example of front-running occurs when a broker exploits market-moving knowledge that has not yet been made public. There are gray areas. An investor may buy or sell a stock and then publicize the reasoning behind it.

▣ **Primitive forest:**

- A forest unaffected by humans, typically containing large live trees, large dead trees, and large logs.



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