

CURRENT AFFAIRS

WEEKLY

WEEK: 4

MARCH
2022

MAINS

GS-I

- THE REVOLUTIONARY HEROS THAT CHANGED INDIA

GS-II

- INDIA-JAPAN RELATIONS
- INDIA'S ARCTIC AMBITIONS
- NATIONAL PUBLIC HEALTH BILL
- PRE-VETTING HIGH STAKE AGREEMENTS

GS-III

- THE RISK OF STAGFLATION IN THE ECONOMY
- WORLD DOWN SYNDROME DAY: CHROMOSOMAL ABERRATIONS
- RECYCLING HEAT GENERATED BY DATACENTERS
- BIG TECH WEAPONIZING INTERNET AMID CONFLICT
- JUST WAR THEORY

PRELIMS

POLITY &
GOVERNANCE

- NITI AAYOG ORGANIZES 5TH EDITION OF WOMEN TRANSFORMING INDIA AWARDS
- TEA BOARD OF INDIA TO BE OVERHAULED
- EYEING 'TURNAROUND', BBNL TO MERGE WITH BSNL BY MONTH-END

SCIENCE &
TECHNOLOGY

- PHYSICIST EUGENE PARKER, WHO THEORIZED THE EXISTENCE OF SOLAR WIND, DIES AGED 94
- DAMIEN HIRST'S FORMALDEHYDE SCULPTURES, THEIR ACCEPTANCE AND CRITICISM
- BRAIN CENTRE TO MAP HUMAN BRAIN AT CELLULAR LEVEL LAUNCHED IN IIT-MADRAS

ENVIRONMENT

- WORLD SPARROW DAY
- BOMA TECHNIC TO BE USED IN KANONATIONAL PARK
- SUN PHARMA'S EXPANSION PROJECT NEAR TAMIL NADU'S VEDANTHANGAL BIRD SANCTUARY SET TO GET GREEN NOD

ECONOMY

- ONDC TO DEMOCRATISE E-COMMERCE AND HELP PROTECT SMALL BUSINESSES

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— **Disclaimer** —

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

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

CONTENTS

Section - A: MAINS CURRENT AFFAIRS			
Area of GS		Topics in News	Page No.
GS I	HISTORY	<ul style="list-style-type: none"> The revolutionary Heros that changed India 	02
GS II	INTERNATIONAL RELATIONS	<ul style="list-style-type: none"> India-Japan Relations 	04
		<ul style="list-style-type: none"> India's Arctic Ambitions 	06
	POLITY & GOVERNANCE	<ul style="list-style-type: none"> National Public Health Bill 	08
		<ul style="list-style-type: none"> Pre-Vetting High Stake Agreements 	10
GS III	ECONOMY	<ul style="list-style-type: none"> The risk of Stagflation in the economy 	12
	SCIENCE & TECHNOLOGY	<ul style="list-style-type: none"> World Down Syndrome Day: Chromosomal Aberrations 	13
		<ul style="list-style-type: none"> Recycling heat generated by datacenters 	15
		<ul style="list-style-type: none"> Big Tech weaponizing internet amid conflict 	17
GS IV	ETHICS	<ul style="list-style-type: none"> Just War Theory 	19
Section - B: PRELIMS CURRENT AFFAIRS			
Area of GS		Topics in News	Page No.
GS II	POLITY & GOVERNANCE	<ul style="list-style-type: none"> NITI Aayog organizes 5th Edition of Women Transforming India Awards 	22
		<ul style="list-style-type: none"> Tea Board of India to be overhauled 	22
		<ul style="list-style-type: none"> Eyeing 'turnaround', BBNL to merge with BSNL by month-end 	23
GS III	SCIENCE & TECHNOLOGY	<ul style="list-style-type: none"> Physicist Eugene Parker, who theorized the existence of solar wind, dies aged 94 	24
		<ul style="list-style-type: none"> Damien Hirst's formaldehyde sculptures, their acceptance and criticism 	26
		<ul style="list-style-type: none"> Brain centre to map Human Brain at cellular level launched in IIT-Madras 	28
	ENVIRONMENT	<ul style="list-style-type: none"> World Sparrow Day 	29
		<ul style="list-style-type: none"> Boma technic to be used in Kano National Park 	30
		<ul style="list-style-type: none"> Sun Pharma's expansion project near Tamil Nadu's Vedanthangal Bird Sanctuary set to get green nod 	32
	ECONOMY	<ul style="list-style-type: none"> ONDC to democratise e-commerce and help protect small businesses 	33
Section - C: QUICK BYTES			
SUBJECT		Topics in News	Page No.
INTERNATIONAL RELATIONS		<ul style="list-style-type: none"> Russia uses Kinzhal and Bastion missiles on Ukraine 	36
SCIENCE & TECHNOLOGY		<ul style="list-style-type: none"> Abel prize for 2022 goes to American mathematician Dennis P. Sullivan 	36
ENVIRONMENT		<ul style="list-style-type: none"> 36-million-year-old whale fossil found in Peruvian desert 	37

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SECTION: A
(MAINS)

CURRENT AFFAIRS

THE REVOLUTIONARY HEROS THAT CHANGED INDIA

CONTEXT:

In the light of the observance of the Shaheed Diwas, in remembrance of Bhagat Singh, Shivaram Rajguru and Sukhdev Thapar who were hanged by the British Government on 23rd March, 1931, this brief aims to present a detailed picture of the revolutionary heroes that 'actually' changed India.

Who was Bhagat Singh?

- Bhagat Singh was born in **Lyallpur District** (today in Pakistan's Punjab) on 28th September, 1907.
- He was an Indian revolutionary and freedom fighter.
- He completed his education at the National College, Lahore established by **Lala Lajpat Rai**.
 - **Lala Lajpat Rai** was considered by Bhagat Singh to be his mentor in the beginning of his political career.
- Fondly known as 'Shaheed (martyr) Bhagat Singh', he is considered a national hero of India's freedom struggle against colonial rule.
- As a teenager, Bhagat Singh popularised the slogan of '**Inquilab Zindabad**' which eventually became the catchphrase of the Indian independence movement.



What ideologies were followed by Bhagat Singh?

- Bhagat Singh was **anti-imperialist** to core.
- According to him imperialism was **not only limited to being ruled by foreign nationals**.
- Even rule by indigenous people of the country was considered to be imperialism by him if it involved **exploitation of the poor**.
- Political ideology of Bhagat Singh bended towards **Marxism**, and it was considered by him to be the only solution to India's poverty.
- He therefore was in favour of **nationalizing important industries** in the country (e.g. steel plants, railways etc.).

- His romanticism with Marxist ideology was due to the success of **Russian Revolution**.
- **Secularism** was another idea that Bhagat Singh held dearly to.
- For him **communalism was as dangerous for India as colonialism**.
- He personally was an **Atheist** and has explained his reason for being so in the book "**Why I am an Atheist?**"
- Bhagat Singh did not believe in blindly following anyone and laid emphasis on **critically examining and questioning every idea** irrespective of its source.
- He gave utmost **importance to reading**, which according to him was very important for a revolutionary.
- Bhagat Singh himself is known to have been a voracious reader and he also pushed his comrades to do the same.

With which organizations was Bhagat Singh associated?

- In 1926, Bhagat Singh established the '**Naujawan Bharat Sabha (Youth Society of India)**' and joined the **Hindustan Republican Association** (later known as Hindustan Socialist Republican Association).
 - Leaders and cadres of communal political organizations e.g. Muslim League, were not provided enter into the Bharat Naujawan Sabha.

What political actions were taken by Bhagat Singh?

- In December 1928, Bhagat Singh, along with Sukhdev and Rajguru, planned to avenge the death of Indian nationalist leader Lala Lajpat Rai and plotted to assassinate the **Superintendent of Police James Scott** in Lahore.
- However, in a case of mistaken identity, **John Saunders**, the Assistant Superintendent of Police was shot.
- To avoid being recognised and arrested for the crime, Bhagat Singh escaped from Lahore to Calcutta after shaving his beard and cutting his hair.

- In April 1929, Singh and **Batukeshwar Dutt** bombed the **Central Assembly Hall** in Delhi, and shouted the slogan of **"Inquilab Zindabad!"**.
- He was later arrested after the incident. He and his comrades **fasted for 63 days** in jail for their demand of being treated as political prisoners and accorded certain rights on that basis.
- For his involvement in the **Lahore Conspiracy Case** Bhagat Singh, Sukhdev and Rajguru were awarded **death penalty**.

Important quotes by Bhagat Singh:

- The Sword of revolution is sharpened on the whetting stone of ideas.
- Revolution is inalienable right of mankind.
- Merciless criticism and independent thinking are two traits of revolutionary thinking.

Title accorded to Bhagat Singh:

- Bhagat Singh is fondly called **"Saheed-e-Azam"**.

INDIA-JAPAN RELATIONS

CONTEXT:

Visit of Japanese Prime Minister Fumio Kishida to India.

◎ BACKGROUND:

- Year 2022 marks the **70th anniversary** of India-Japan diplomatic relations.
- Prime Minister of both the countries concluded the **14th India-Japan Annual Summit** during this visit.
- India and Japan have enhanced their ties in past several years and the recent visit by Japanese Prime Minister **expanded the horizon of cooperation** between the two countries.
- The visit was also important as two countries **shared their views of the on-going Russia-Ukraine conflict**.

◎ ANALYSIS:

History of Japan's relations with India:

• During ancient times:

- The friendship between India and Japan has a **long history rooted in spiritual affinity and strong cultural and civilizational ties**.
- Exchange between Japan and India is said to have begun in the 6th century when **Buddhism** was introduced to Japan.
- In 752 A.D. consecration or eye-opening of the towering statue of Lord Buddha in **Todaji Temple (Nara)** was performed by an Indian monk, **Bodhisena**.
- Indian culture, filtered through Buddhism, has had a great impact on Japanese culture, and this is the source of the Japanese people's sense of closeness to India.
- It is important to note that since ancient time, **India and Japan have never been adversaries**.

• During Colonial times:

- The **Japan-India Association was set up in 1903**, and is today the oldest international friendship body in Japan.
- Japanese soil was used by Indian revolutionary Rash Bihari Bose** to spread the idea of fighting against the British rule for liberating India.

- It must also be remembered that **Azad Hind Fauz was organised with the help of Japanese Army** and both fought together against the British forces to free India during the Second World War.

• After India gained Independence:

- After India gained independence, both the countries tried to build a strong foundation on which the current state of their relations rest.
- In 1949, Indian Prime Minister **Jawaharlal Nehru donated an Indian elephant** to the Ueno Zoo in Tokyo.
- This brought a ray of light into the lives of the Japanese people who still had not recovered from defeat in the Second World War.
- Post the Second World War, **India did not attend the San Francisco Conference** where Japan was pushed to a corner by the victorious allied power of war.
- Japan and India signed a peace treaty and established diplomatic relations on 28th April, 1952. This treaty was **one of the first peace treaties Japan signed after World War II**.
- In 1958, India was the first country to receive loan for developed in Japanese currency**.
- In the Post-Cold War Era:**
- The **fall of Berlin Wall and collapse of USSR** gave further impetus to India-Japan relations.
- India's East Asia Policy** and its need to fill the void, left by the termination of Soviet Union, cemented the bond of between India and Japan even more.
- Fostering of this relation though received a jolt when **India tested its nuclear weapons at Pokaran in 1998** and Japan being a victim of two atomic bombs condemned the former.
- The relationship between the two countries was soon revived as the then Prime Minister of Japan Yoshiro Mori visited India in the year 2000 and **"Global Partnership for India and Japan for 21st Century" was signed**.
- Further upgrade of this relation took place when in **2006**, the association between the two countries was elevated and termed as **"Global and Strategic Partnership"**.
- In 2014**, the relation was ameliorated further to **"Special Strategic and Global Partnership"**.

Different dimensions of relations between India and Japan:

● Strategic Relations:

- India and Japan are **both members of Quad**.
- **Quad:** The **Quadrilateral Security Dialogue** is a strategic security dialogue between Australia, India, Japan, and United States that is maintained by talks between member countries.
- Both India and Japan are **interested maintaining stability in the Indo-Pacific** region and hence are working together towards achieving that goal.
- **China shares bitter history** with both India and Japan.
- **China's rise and muscle flexing has been caused escalation of its border tension** with India and Japan and hence a common strategy to deal with the Dragon is felt necessary.
- **India and Japan's recently concluded trilateral partnership with Italy** to counter China and maintain **peace and stability in the Indo-Pacific** also showcases common ground in strategic sphere between the two countries.
- India and Japan are also camping for a seat in **United Nations Security Council as Permanent Members**. Both the countries are strong advocates of **reforms in UN** and its affiliate institutions.
- **Economic ties between India and Japan:**
 - India and Japan have signed a **Comprehensive Economic Partnership Agreement in 2011**.
 - Japan is one of the biggest investor in India. **Some of the Mega Projects** with Japanese investments are:
 - ▶ Delhi-Mumbai Industrial Corridor
 - ▶ Mumbai-Ahmedabad High Speed Rail
 - ▶ Chennai-Bengaluru Industrial Corridor
 - Trade between India and Japan stood at \$ 16.95 billion in the FY 2019-20.
 - Main items of export from India to Japan are:
 - ▶ Petroleum products

▶ Textiles

▶ Iron ore

▶ Fish and fish products

- Important items that India imports from Japan are:

▶ Electronic goods

▶ Automobile parts

▶ Steel products

- Recently **India, Australia and Japan** formally launched the **Supply Chain Resilience Initiative**. The initiative was launched to **counter the dominance of China in the Global Supply Chain**.
- **The Technical Intern Training Program (TITP)** between India and Japan also has potential to deepen economic relations between the two.

Technical Intern Training Program: Aims to send Indian technical interns to Japan for on-the-job training for a period of three to five years.

- **Japan has agreed to train Indian youths** on its industrial floors and contribute in Skill India and Make in India projects.
- **Disaster Management:**
 - Indian Institute of Technology, Roorkee and Japan's Fujita Corporation are conducting joint research in the field of **earthquake disaster prevention**.

◎ WAY FORWARD

- India and Japan need to enhance their **people to people contact** even more.
- **Japan's ageing economy** can be sustained **by India's human resource**.
- Both countries can together help **keep China in check**.
- Japan can be a source of further capital investment in India, especially has less investment opportunities now are visible for the former in China due to deteriorating relations between the two.

INDIA'S ARCTIC AMBITIONS

CONTEXT:

As per the contents of India's Arctic Policy, unveiled recently, India aspires to have a permanent presence, more research stations and establish satellite ground stations in the Arctic region.

◎ BACKGROUND

- The policy documents the history of India's relationship with the region, which can be traced back to February 1920, when it signed the **Svalbard treaty** in Paris.
- In 2007, India launched its **first scientific expedition** to the Arctic.
- Since then, India has been able to set up an observatory in **Kongsfjorden** as well as an atmospheric laboratory at **Gruebadet**.
- Since 2013, India has been an **Observer nation** in the **Arctic Council**, where it has consistently participated in meetings of Senior Arctic Officials and contributed to its six Working Groups, the policy states.

◎ ANALYSIS

What is the Arctic Policy?

- Title: 'India and the Arctic: building a partnership for sustainable development'.

- The policy is built on six central pillars —
 - ▶ science and research
 - ▶ climate and environmental protection
 - ▶ economic and human development
 - ▶ transportation and connectivity
 - ▶ governance and international cooperation
 - ▶ national capacity building

Arctic region

- The region surrounding the North Pole consists of a large ocean surrounded by land.
- This ocean, called the Arctic Ocean, is like no other ocean on Earth; and because of its special location and climate, the lands that surround it are unique.
- The Arctic region covers parts of eight countries: Canada, Greenland, Iceland, Norway, Sweden, Finland, Russia, and the United States.



What is the status of India's presence in Arctic as of now?

- India has had a **research base in the Arctic since 2008** and also has **two observatories** in the region.
- The country presently has a single station, **Himadri, in Ny-Alesund, Svalbard, a Norwegian archipelago**, where research personnel are usually present for 180 days.
- It is in the **process of procuring an ice-breaker research vessel** that can navigate the region.
- India, since 2007, has so far sent 13 expeditions to Arctic and runs 23 active science projects on the region.
- About **25 universities and institutes** in India are involved in Arctic research in India.
- India has **"Observer" status in Arctic Council**.

Arctic Council

- Arctic Council is an intergovernmental forum that addresses issues faced by the Arctic governments and the indigenous people of the Arctic.
- At present, eight countries exercise sovereignty over the lands within the Arctic Circle.
- Members of Arctic Council are- Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and United States.
- **Headquarters** of Arctic Circle is located at **Tromso, Norway**.

Why does India want enhance its research role in Arctic?

- Weather of **Arctic influences Indian monsoon**.
- Studying the **impact of climate change on ice caps** in Arctic.

NATIONAL PUBLIC HEALTH BILL

CONTEXT:

Initiative taken by Government of India to draft the new National Public Health Bill.

◎ BACKGROUND:

- Need has been felt for quite some time now to replace the colonial **Epidemic Disease Act, 1897** to deal with public health emergencies.
 - ▶ The Epidemic Act 1897 was drafted by the British administration to prevent the outbreak of bubonic plague.
 - ▶ The bubonic plague recorded the first case in Bombay and the disease quickly spread swiftly to other parts of the city, and the death toll was estimated at 1900 people per week through the rest of the year.
- Requirement of such a law was amplified during the time of Corona pandemic.
- The **National Public Health Bill** is expected to be introduced in the Monsoon Session of the Parliament this year.

Right to Health

- **Articles 39, 41, 42 and 47** in the **Directive Principles of State Policy (DPSP)** contain provisions regarding Health.
- Article 21 provides for the right to life and personal liberty and is a fundamental right.

◎ ANALYSIS

What are the objectives of National Public Health Bill?

- It is important to note that existing Epidemic Disease Act lacks provisions for management of a pandemic like Covid.
- This short coming will be addressed by the new National Public Health law.
- This draft Bill has defined various measures (such as isolation, quarantine and lockdown) that could be taken by the government during a public health emergency.
- The draft of National Public Health Bill shows that the new law will deal with updated, scientific and comprehensive provisions on surveillance, disease notification and public health emergencies.

- The Bill lays down several situation in which 'Public Health Emergency' can be declared.
- The above definition of Public Health Emergency will include:
 - ▶ Bioterrorism
 - ▶ Appearance of a novel or previously controlled or eradicated infectious agent or biological toxin
 - ▶ A natural disaster
 - ▶ A chemical attack or accidental release of chemicals
 - ▶ A nuclear attack or accident

Which new organisations would be created by the National Public Health law?

- The draft Bill proposes the setting up of four-tier health administration architecture with public health authorities at national, state, district and block-level.
- The abovementioned authorities will have "well defined" powers and functions to deal with "public health emergencies".
- National public health authority will be headed by the Union Health Minister.
- Health Ministers of states will lead the state public health authorities in their respective states.
- At District level, the Collector will oversee the functioning of the public health authority.
- Block Medical Authority or Medical Superintendent will head the public health authority at Block level.
- All the above mentioned authorities will have powers to prevent the rise of non-communicable diseases and infectious diseases.
- The proposed law will also create Public Health Cadre.

Issues in India's health sector

- **Inadequate reach:** The inadequate reach of basic healthcare services, shortage of medical personnel, quality assurance, the inadequate outlay for health, and most importantly insufficient impetus to research.

- **Inadequate Fund:** The inadequate fund allocation by the administrations is one of the grave concerns.
- **Optimal Insurance:** The concept of health insurance is still not clear in India and the market is still virgin.
- **No focus on Preventive Care:** In India, there is a very low emphasis on preventive care, which can be proved very effective in solving a lot of problems for the patient in terms of misery or financial losses.
- **Less emphasis on Medical Research:** In India, there is no much impetus is being given to R&D and cutting-edge technology-led new initiatives. Such technologies could be useful in an unprecedented situation like Covid-19.
- **Issue of Policymaking:** For providing effective and efficient healthcare services policymaking is certainly an important aspect. In India, the problem is fundamental of supply than demand, where policymaking can be effective.
- **Shortage of Medical Workforce:** In India, there is a shortage of doctors, nurses, and other staff in the health sector. As per a report laid down by a minister in Parliament, there is a shortage of 600,000 doctors in India.
- **Inadequate outlay for health:** As per National Health Policy 2002, India contributes only 0.9 percent of its GDP to the Health care sector.

- **Lack of structure:** Private hospitals are expensive and public hospitals are either not enough for the Indian Population or lack the basic facilities.

What measures are required in the sector?

- **Improving infrastructure:** There is a need of improvising the infrastructure of public hospitals which have a lot of burden due to the high population in India.
- **Focus on private hospitals:** Private hospitals must be encouraged by the government because their contribution is important. Private sector also needs to participate because the challenges are significant and these cannot be resolved only by the government alone.
- **Efficiency enhancement:** More medical personnel must be recruited to enhance the capabilities and efficiency of the sector.
- **Technology utilisation:** Technologies must be used to connect the dots in the health system. Medical devices in hospitals/ clinics, mobile care applications, wearables, and sensors are some forms of technology that should be added in this sector.
- **Awareness:** People should be made aware of early detection and preventive care. It would help them in saving pocket expenditure also.

PRE-VETTING HIGH STAKE AGREEMENTS

CONTEXT:

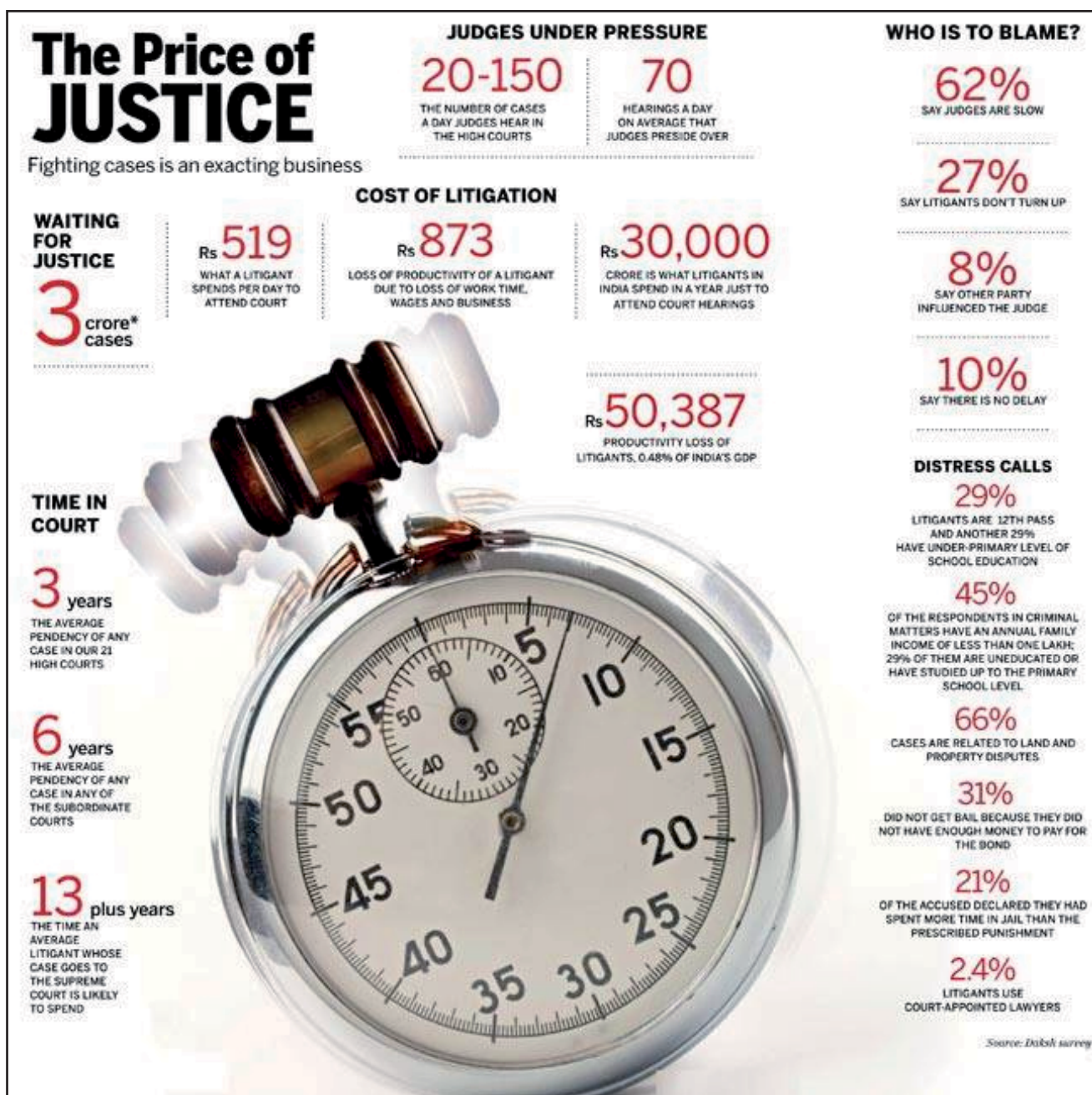
Statement made by Chief Justice of India underlying the requirement to “pre-vet” high stake commercial and investment agreement.

What is “Pre-Vet”?

- Pre-vetting, in the backdrop of the above news, means **checking the provisions and finer points of high stake agreement.**

Why is it required according to the Chief Justice of India?

- The Chief Justice of India, while speaking at an international conference titled “Arbitration in the era of Globalisation” in Dubai, said that in many cases **parties to agreement disown the contract at the time of its execution if this favours them.**



- The **above scenario leads to initiation of a lengthy litigation** process which normally takes a long time to get adjudicated.
- To avoid such delays and objections, the Chief Justice of India has suggested **the formation of a special authority whose function would be to pre-vet** high stake agreements.
- CJI though clarified that pre-vetting shall only be done with the **prior approval of the parties** involved in the agreement.

What would be the result of pre-vetting?

- **Less disputes** may arise out of the agreements leading to **fewer litigations**.

On what other topic did the CJI speak at the conference?

- The Chief Justice of India stressed on the need for **minimum judicial interference** in the disputes that have been submitted **for arbitration**.
- For **more effective arbitration**, the CJI suggested:
 - **Strict adherence to timeline** for completion of arbitral process.

- **Execution** of arbitration award.
- **Respect for the autonomy** of parties to the agreement.

What is Arbitration?

- Arbitration is a procedure in which a dispute is submitted, by agreement of the parties, to one or more arbitrators who make a binding decision on the dispute.
- In choosing arbitration, the parties opt for a private dispute resolution procedure instead of going to court.

Reason behind delay in judicial process

There are multiple reasons behind the delay:

- Slow and inefficient investigation by law enforcement agencies
- poor judicial infrastructure
- high rate of vacancy in the number of judges
- lack of judicial hours

THE RISK OF STAGFLATION IN THE ECONOMY

CONTEXT:

With rising tensions between Russia and Ukraine, disrupting supply chain, and increasing inflation, there are increasingly warning about stagflation in India.

ANALYSIS

What is Stagflation?

- Stagflation can be understood as a combination of the words
 - ▶ Stagnation
 - ▶ Inflation
- Stagflation is a perfect storm of economic ills:
 - ▶ slow economic growth
 - ▶ high unemployment (economic stagnation)
 - ▶ high prices (inflation)
- Initially, many economists believed stagflation wasn't possible. After all, unemployment and inflation rates generally move in opposite directions.

However, as the "Great Inflation" period of the 1970s ultimately proved, stagflation is real, and it can have a devastating effect on the economy.

Worst of both worlds

- The term appeared as early as 1965, when **British Conservative Party politician Iain Macleod** in a speech to the House of Commons said: **"We now have the worst of both worlds — not just inflation on the one side or stagnation on the other, but both of them together. We have a sort of 'stagflation' situation and history in modern terms is indeed being made."**

How can stagflation be compared to inflation?

Stagflation and inflation are related, but they shouldn't be confused.

• Inflation

- The term inflation refers to a **sustained increase** in the average price level of all goods and services, not just a few of them, in an economy over time.
- **Reasons:** Inflation happens when the money supply grows at a faster rate than the economy can produce goods and services.

• Stagflation

- Stagflation happens when inflation exists in tandem with slow economic growth and high unemployment.
- Typically, these economic conditions don't occur together. Unemployment and inflation tend to be inversely correlated.
- So, as unemployment rates increase, inflation usually decreases and vice versa.
- Of course, as the stagflation of the 1970s illustrated, this relationship isn't always stable or predictable.

What are the factors responsible for Stagflation?

- The two root causes of stagflation economists generally agree upon are
 - ▶ supply shocks
- fiscal and monetary policies
- **Supply Shock**
 - A supply shock is anything that reduces the economy's capacity to produce goods and services at given prices. For example, throughout the pandemic, there have been supply shocks in:
 - ▶ **Labor**, with fewer people working
 - ▶ **Goods**, for example, semiconductor shortages, which started even before the pandemic
 - ▶ **Services**, as people postponed elective surgeries and other health-care procedures

Poor fiscal and monetary decisions

Poor fiscal and monetary decisions also prompt stagflation.

What are the consequences of stagflation?

The trifecta of slow growth, high unemployment, and fast inflation can result into the following:

- Significant pressure on the economy
- Distort investment decisions
- Damaging to fixed income markets (rising interest rates push bond prices lower and depress equity valuations)
- As consumer spending slows, corporate revenue declines, exacerbating the overall effect on the economy.

WORLD DOWN SYNDROME DAY: CHROMOSOMAL ABERRATIONS

CONTEXT:

World Down Syndrome Day, WSDS is observed every year on 21st March. It is a global campaign that is observed annually to spread awareness about Down Syndrome.

◎ BACKGROUND

- WSDS is officially observed by the United Nations since 2012.
- March 21 was selected to signify the uniqueness of the triplication of the 21st chromosome which causes Down syndrome, a disorder that affects approximately 6,000 babies at birth every year.
- It is usually associated with physical growth delays, mild to moderate intellectual disability, and characteristic facial features.

◎ ANALYSIS:

What are chromosomal aberrations?

- Chromosomal aberrations, or abnormalities, are changes to the **structure** or **number** of chromosomes, which are strands of condensed genetic material.
- Humans typically have 23 pairs of chromosomes, of which 22 pairs are **autosomal**, numbered 1 through 22.
- The last pair of chromosomes are **sex chromosomes**, which determine an individual's sex assignment.
- At birth, most people with XY sex chromosomes are assigned male, and most individuals with XX are assigned female.
- In general, each parent contributes one set of chromosomes to their offspring, which collectively make up the 23 pairs of chromosomes.
- A change to any of the chromosomes, in number or structure, creates a chromosomal aberration and may cause **medical disorders**.

Chromosomal disorders due to numerical abnormalities:

- Chromosomal disorders are due to the change in the number of chromosomes present. This can be categorized into various types:
- **Aneuploidy**: loss or gain of a chromosome. This happens due to non-disjunction of chromatids when chromatids fail to separate during cell

division. This results in one gamete having two copies of one chromosome and the other having no chromosome.

- ▶ **Trisomy**: The cell has one extra chromosome ($2n+1$)
- ▶ **Monosomy**: The cell has one chromosome less ($2n-1$)
- ▶ Aneuploidy can be due to nondisjunction of autosomes i.e. chromosomes 1-22 or sex chromosomes.
- **Euploidy**: Loss or gain of the whole set of chromosome. Mostly occurs in plants.
 - ▶ **Haploid**: Loss of one set of the chromosomes, i.e. 'n' number of chromosomes
 - ▶ **Polyloid**: Addition of one or more set of chromosomes, e.g. '3n (triploid)', '6n (hexaploid)' etc.
- **Examples of numerical abnormalities:**
 - ▶ **Down's Syndrome**: Trisomy of 21st chromosome
 - ▶ **Patau's Syndrome**: Trisomy of 13th chromosome
 - ▶ **Edward's Syndrome**: Trisomy of 18th chromosome
 - ▶ **Klinefelter's Syndrome**: Trisomy of sex chromosome (XXY)
 - ▶ **Super Female Syndrome**: Trisomy of Sex chromosome (XXX)
 - ▶ **Turner's Syndrome**: Monosomy of sex chromosome (X0)

Chromosomal disorders due to structural abnormalities:

- This happens when a large set of genes are deleted, duplicated or rearranged causing structural changes in the chromosome. Structural abnormalities can be due to:
- **Deletion**: A portion of the chromosome is lost during cell division.

Example of disorder due to deletion:

- **Cri du chat** (cry of the cat): Deletion of a small portion of 5th chromosome. Children with this disease have a small head with unusual facial features, severe mental retardation and make a sound like a cat while crying.

- **Duplication:** The presence of part of a chromosome in excess is known as duplication.
- Tandem duplication, where the duplicated region is present side by side (ABCDEF→ABCDEDEF)
- Reverse tandem, here duplicated region is just reverse of the normal sequence (ABCDEF→ABCDEEDF)
- Displaced duplication, here duplicated region is not situated adjacent to the normal sequence
- Example of disorder due to duplication:
- **Fragile X:** Affects 1:1500 males and 1:2500 females. This is the most common form of mental retardation, where the CGS segment is repeated more than 200 times.
- **Inversion:** inversion results from breakage and reunion of a part of the chromosome rotating by 180° on its own axis. So there occurs a rearrangement of genes. Its effects are not as severe as in other structural defects
- **Translocation:** The shifting or transfer of a set of genes or part of a chromosome to a non-homologous one is known as translocation. There is no addition or loss of genes, only the rearrangement occurs. This rearrangement may lead to phenotype changes pertaining to the new environment. It can cause difficulties in the development of egg, sperm or zygote. These often result in miscarriages and children born with disabilities.

◦ **Example of disorder due to translocation:**

- **Acute Myelogenous Leukemia:** In this type of cancer, bone marrow and cells derived from it show the presence of a short chromosome named as "Philadelphia (Ph1) chromosome". The 22nd chromosome loses a part of its arm which gets translocated to the distal end of the 9th chromosome. It is not transmitted to the offspring.

How can one reduce the risk of chromosomal aberrations?

- Parents may reduce some risk of chromosomal aberrations in offspring by meeting their own nutritional needs, limiting exposure to problematic substances, and visiting a doctor before becoming pregnant.
- General risk reduction strategies include eating healthy, abstaining from smoking or drinking alcohol, and taking prenatal vitamins prior to pregnancy.
- Chromosomal aberrations are more likely to occur in pregnancies when the pregnant individual is over the age of 35.
- If a chromosomal disorder has been identified in a family, a healthcare provider may recommend **genetic counseling** to discuss different options, including **assisted reproduction techniques**.

RECYCLING HEAT GENERATED BY DATACENTERS

CONTEXT:

Global cybersecurity firm Kaspersky estimated that in winter, a datacentre can provide heating up to 85 degrees Fahrenheit, similar to a gas boiler, with better energy efficiency than a heat pump in a new house.

◎ BACKGROUND:

- Microsoft has partnered with **Fortum**, a Finnish energy company to heat homes, services and businesses in Finland with sustainable waste heat from a new datacentre region that Microsoft has planned to build.
- The software giant claims the **waste heat recycling** concept from the datacentre region to be the world's largest scheme to recycle waste heat from data centres.
- The joint project takes place at the intersection of two megatrends: **digitalisation** and **energy transition**.

◎ ANALYSIS:

What is a datacentre?

- A datacentre is a physical facility that organizations use to
 - store their critical applications and data
 - process data
 - disseminate them to users
- It is designed based on a **network of computing and storage resources** that enables delivery of shared applications and data.
- The key **components** of a datacentre are **routers, switches, firewalls, storage systems, servers, and application-delivery controllers**.
- Many large datacentres are located in **dedicated buildings**. Smaller datacentres may be situated in specially designed rooms within buildings constructed to serve multiple functions.
- Since datacentres consume large amounts of energy, it's important to ensure the physical structures that house them **are well-designed and insulated to optimize temperature controls and energy efficiency**.

How much heat datacentres generate?

- The temperatures recorded in the hot aisles of a datacentre hover between **80 and 115 degrees Fahrenheit**.

- Global cybersecurity firm Kaspersky estimates over **75%** of a datacentre's electricity becomes **waste heat**.
- It noted that in winter, a datacentre can provide heating up to 85 degrees Fahrenheit, similar to a **gas boiler**, with **better energy efficiency than a heat pump** in a new house.

What's the scale of their carbon footprint?

- On a global level, datacentres consume around **200 terawatt-hours (TWh)** of electricity, which is **more than 1%** of the world's total electricity.
- They contribute to **0.3% of all global CO2 emissions**, according to the International Energy Agency.
- Datacentre energy usage in some countries could increase to **15% to 30%** of their total domestic electricity consumption by the end of the decade.

How will this recycling work?

- Fortum will capture the excess heat generated by the new datacentre region and transfer the clean heat from the server cooling process to homes, services and business premises that are connected to the **district heating system**.
- The **new generation of district heating** is based on replacing fossil fuels with flexible solutions like renewable electricity, heat pumps and waste heat utilization.
- Artificial intelligence** will help optimize operations of the entire system.

District Heating System:

District heating is the most popular method of heating premises in Finland. It is a system of generating heat in a centralized location by capturing heat and then distributing it to buildings for residential and commercial heating needs. The heat is transferred to customers as hot water which is pumped through insulated underground pipes.

Which other countries recycle waste heat from datacentres?

- District heating is popular in the **Nordic and Baltic countries**, as well as in **Russia** and **China**, which have high heat demands during winters.

- Datacentres thrive in **cold climates**. Their location in cold climates helps to cut down on the need to cool server rooms.
- Cold weather is also an **asset** as technology companies shift to **selling their heat** which doesn't have a lot of demand in hot weather.

◎ **CONCLUSION:**

The tremendous IT equipment heat output of data centers and the trend toward waste heat recovery are a synergistic match. Someday, the energy industry will stop looking at the data center industry as energy hogs, but instead recruit them for contributing heat to their district energy systems.

BIG TECH WEAPONIZING INTERNET AMID CONFLICT

CONTEXT:

Amid the continued “weaponization” of the internet by some Big Tech platforms during the ongoing Russia-Ukraine conflict bringing back the focus on the sweeping powers of social media platforms, India is readying a new cybersecurity and data governance framework.

● ANALYSIS:

How Big Tech firms are weaponizing internet and why it is a troubling precedent:

- Since the Russian invasion of Ukraine began on February 24, **companies, countries, Big Tech platforms and intermediaries** have announced a slew of sanctions which have either stopped or cut off services being provided by them to Russia and its citizens.
- Some of these measures include **stoppage of payment services**, refusal by intermediaries to operate in Russia and not allowing their citizens to post.
- Two phenomenon are very visible: **one is weaponisation of the internet** of which we were aware of in some sense.
- The **second is the phenomenon of the splinter-net**. The internet is increasingly being splintered, driven by power of some Western countries.
- The actions by Big Tech companies and intermediaries **also violate** basic principles of **net neutrality** and basic idea of openness of internet as they have now become “gatekeepers”.
- These platforms have now become dominant and in the event of a conflict between two **sovereigns**, they are being weaponised and **there are no laws** that would prevent this.
- The **use of sanctions** to cut off access to internet is disturbing. It is quite a **troubling precedent**.

What is splinter-net?

- The splinternet (also referred to as **cyber-balkanization or internet balkanization**) is a characterization of the Internet as splintering and dividing due to various factors, such as technology, commerce, politics, nationalism, religion, and divergent national interests.
- In this internet is controlled by **autonomous political blocs** or any other **controlling power**—such as tech or e-commerce companies, or countries with diverging national interests tied to nationalism or religion.

- In its original form, the internet transcended borders and allowed people unfettered access to virtually everything, while the **splinternet limits citizens’ access to data, forces businesses to keep data within borders**, and even **changes how they operate within a state**.
- Splinternet is often defined as the **balkanization of the net**, as nations try to preserve their sovereign identities and economic interests.
- A fusion of the words “split” and “internet”, the splinternet is a fragmented version of the world wide web with national identities.

Examples:

- The **Chinese government** erected the “**Great Firewall**” for political reasons, and **Russia** has enacted the **Sovereign Internet Law** that allows it to partition itself from the rest of the Internet.
- US** and **Australia**, discuss plans to create a similar firewall to block child pornography or weapon-making instructions.
- Russia has accelerated **domestic online censorship** amid Russia-Ukraine crisis.
- A Russian court banned Facebook and Instagram as “extremist” - part of efforts by Moscow to crack down on social media during the conflict in Ukraine.

Learning for India in dealing with Cyberspace:

- These recent events **strengthen India’s case for**
 - Data localization,
 - National champions,
 - Resilient internet network architecture,
 - Native open **APIs** (application programming interface) and
 - A strong cyber security command centre.
- It is validating our thinking in terms of a **new digital law**, the need for a **data governance framework**.

- We need to basically create a **framework** which will have the **data protection law**, a **digital law** and other **cyber security statutes**.
- Architecturally, we need to build the **cyberspace jurisprudence** rather than doing it piecemeal or in catch up mode.

◎ CONCLUSION:

These Big Tech companies, which initially rallied on government support to become the behemoths that they are today, are now presiding over splinter-net and the balkanisation of internet by imposing sanctions on countries.

JUST WAR THEORY

CONTEXT:

Wars are always destructive, and thus the politics and morality of war are always in question.

It is rare in recent times, however, that an invasion has proceeded with so little concern for justice and morality as the Russian attack on Ukraine.

What is 'just war theory'?

- The just war theory is a doctrine, also referred to as a tradition, of **military ethics** which is studied by military leaders, theologians, ethicists and policymakers.
- The purpose of the doctrine is to ensure that a war is **morally justifiable** through a series of criteria, all of which must be met for a war to be considered just.
- Just war theory deals with the justification of how and why wars are fought. The justification can be either theoretical or historical.
 - **Theoretical aspect:** The theoretical aspect is concerned with ethically justifying war and the forms that warfare may or may not take.
 - **Historical aspect:** The historical aspect, or the "just war tradition," deals with the historical body of rules or agreements that have applied in various wars across the ages.
- For instance, international agreements such as the **Geneva and Hague conventions** are historical rules aimed at limiting certain kinds of warfare which lawyers may refer to in prosecuting transgressors, but it is the role of ethics to examine these institutional agreements for their philosophical coherence as well as to inquire into whether aspects of the conventions ought to be changed.

Dimensions of Just War theory:

- The criteria are split into two groups:
 - "right to go to war"
 - "right conduct in war"
- The first group of criteria concerns the morality of going to war, and the second group of criteria concerns the moral conduct within war.
- There have been calls for the inclusion of a third category of **just war theory** dealing with the morality of post-war settlement and reconstruction.
- The just war theory postulates the belief that war, while it is terrible but less so with the right conduct, is not always the worst option. Important responsibilities, undesirable outcomes, or preventable atrocities may justify war.

Mapping the background of the theory

- **Egyptian ethics:** A 2017 study found that the just war tradition can be traced as far back as to **Ancient Egypt**.
 - Egyptian ethics of war usually centred on three main ideas, these including the cosmological role of Egypt, the pharaoh as a divine office and executor of the will of the gods, and the superiority of the Egyptian state and population over all other states and peoples.
 - Egyptian political theology held that the pharaoh had the exclusive legitimacy in justly initiating a war, usually claimed to carry out the will of the gods.
- **Mahabharata:** The Indian Hindu epic, the Mahabharata, offers the first written discussions of a "just war" (dharma-yuddha or "righteous war").
 - In it, one of the **five ruling brothers (Pandavas)** asks if the suffering caused by war can ever be justified.
 - A long discussion then ensues between the siblings, establishing criteria like proportionality (chariots cannot attack cavalry, only other chariots; no attacking people in distress), just means (no poisoned or barbed arrows), just cause (no attacking out of rage), and fair treatment of captives and the wounded.
 - The war in the Mahabharata is preceded by the context that develops the "just cause" for the war including last-minute efforts to reconcile differences to avoid war.
 - At the beginning of the war, there is the discussion of "just conduct" appropriate to the context of war.
- **Sikhism:** In Sikhism, the term **dharmyudh** describes a war that is fought for just, righteous or religious reasons, especially in defence of one's own beliefs.
 - Though some core tenets in the Sikh religion are understood to emphasise peace and nonviolence, especially before the 1606 execution of **Guru Arjan** by **Mughal emperor Jahangir**, military force may be justified if all peaceful means to settle a conflict have been exhausted, thus resulting in a dharmyudh.

- **Christian theory:** The Christian theory of the Just War begins around the time of **Saint Augustine of Hippo**. The **Just War theory**, with some amendments, is still used by Christians today as a guide to whether or not a war can be justified.

- ▶ War may be necessary and right, even though it may not be good. In the case of a country that has been invaded by an occupying force, war may be the only way to restore justice.

Opponents of Just War theory:

- Opponents of the just war theory may either be inclined to a **stricter pacifist standard** (which proposes that there has never been or can there ever be a justifiable basis for war) or they may be inclined toward a more **permissive nationalist standard** (which proposes that war only needs to serve a nation's interests to be justifiable).
- In many cases, philosophers state that individuals do not need to be plagued by a guilty conscience if they are required to fight.
- A few philosophers ennoble the virtues of the soldier while they also declare their apprehensions for the war itself.
 - ▶ A few, such as **Rousseau**, argue for insurrection against oppressive rule.
- Some people argue that the Just War doctrine is inherently immoral, while others suggest that there is no place for ethics in war. Still, others argue that the doctrine doesn't apply in the conditions of modern conflicts.
- If God 'requires us to make war' it would be wrong to disobey him, regardless of the requirements of the Just War theory
 - ▶ in the Bible, God is frequently on the side of those waging wars that don't conform to just war theory
- The overriding aim of war should be to achieve victory as quickly and cheaply as possible
 - ▶ if the cause is just, then no restrictions should be placed on achieving it
 - ▶ the rules of conduct of war are mere camouflage because they are always over-ruled by 'military necessity'
- The existence of nuclear, chemical or biological weapons of mass destruction requires a different approach to the problem
 - ▶ these weapons can only be used for unrestricted war and so the condition of proportionality can't be met if they are used
 - ▶ using these weapons guarantees civilian casualties, and thus breaks a basic rule of the conduct of war
 - ▶ since these weapons can't be uninvented they render just war theory pointless
 - ▶ in recent times it has become possible to target such weapons quite precisely, so the problems above only apply to indiscriminate versions of such weapons
 - ▶ the ethics of weapons of mass destruction are a different topic
- Terrorists are inherently uninterested in morality, so following any ethical theory of war handicaps those whom terrorists attack - thus a different approach is needed

Here are some of the arguments that have been put forward:

- All wars are unjust and have no place in any ethical theory
 - ▶ morality must always oppose deliberate violence
 - ▶ just war ideas tend to make violence OK, rather than restrain it
- War disrupts the normal rules of society that morality goes out of the window.
- The just war theory is unrealistic and pointless
 - ▶ in a conflict "the strong do what they will, and the weak do what they must"
 - ▶ the decision to wage war is governed by realism and relative strength, not ethics
 - ▶ morality thus has no use in war

◎ CONCLUSION:

The Just War theory bridges theoretical and applied ethics, since it demands an adherence, or at least a consideration of meta-ethical conditions and models, as well as prompting concern for the practicalities of war. The theory helps the nation-states to assert their power and control where they believe their national interest resides. But the moral and ideal goal of global common which is expected in the idealist school of thought is where perpetual peace seems to be achieved. Hence the responsibility of the nation-states should be towards not justifying narrow self-interests but to serve the concept of global brotherhood.

SECTION: B

(PRELIMS)

CURRENT AFFAIRS

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NITI AAYOG ORGANIZES 5TH EDITION OF WOMEN TRANSFORMING INDIA AWARDS

◎ **CONTEXT:** Recently, NITI Aayog's Women Entrepreneurship Platform (WEP) organized the fifth edition of the Women Transforming India Awards (WTI).

About the Women Transforming India Awards (WTI):

- The Women Transforming India Awards is **NITI Aayog's annual initiative** to highlight the commendable and ground-breaking endeavours of India's women leaders and change-makers.
- The Awards is to be conferred on **seventy five women** achievers to celebrate their contribution towards a **Sashakt Aur Samarth Bharat**.
- Applications for the WTI Awards were invited under one or more than one of the following **seven categories**:
 - Public and Community Service
 - Manufacturing Sector
 - Non-manufacturing Sector
 - Financial Products enabling Economic Growth
 - Climate Action
 - Promote Art, Culture and Handicrafts
 - Digital Innovation

Women Entrepreneurship Platform

- Women Entrepreneurship Platform (WEP) is an **aggregator portal** that **aims to catalyse the entrepreneurial ecosystem for women** and address information asymmetry.
- **Aim:** To build a **vibrant ecosystem for women-led enterprises**.
- The platform also works to **strengthen industry linkages** and increase awareness of existing programmes and services.
- To date, more than 900 women entrepreneurs have been benefitted through 77 programmes and events hosted on the platform.
- The platform played an active role during Covid-19 by conducting webinars to provide business support to women entrepreneurs and through its Masking It Up campaign, whereby women-led small businesses in India that were adversely impacted were supported.

TEA BOARD OF INDIA TO BE OVERHAULED

◎ **CONTEXT:** The 70-year-old Tea Act is headed for an amendment aimed at overhauling the Tea Board of India amid falling tea exports worsened by the Ukraine crisis.

About Tea Board of India:

- Tea Board was set up as a statutory body on 1st April, 1954 as per Section (4) of the Tea Act, 1953.

- As an **apex body**, it looks after the overall **development of the tea industry**.
- The Board's Head Office is situated **in Kolkata** and there are two Zonal offices-one each in North Eastern Region at Jorhat in Assam and in Southern Region at Coonoor in Tamil Nadu.
- For the purpose of tea promotion, three overseas offices are located at London, Dubai and Moscow.
- **Organisation of the Board:**
 - The present Tea Board is functioning as a **statutory body** of the Central Government under the **Ministry of Commerce**.
 - The Board is constituted of **31 members** (including Chairman) drawn from Members of Parliament, tea producers, tea traders, tea brokers, consumers, and representatives of Governments from the principal tea producing states, and trade unions .
 - The Board is **reconstituted every three years**.

EYEING 'TURNAROUND', BBNL TO MERGE WITH BSNL BY MONTH-END

◎ CONTEXT:

The government had decided to merge BBNL and BSNL by the end of this fiscal year.

About Merger:

- BBNL is going to be merged in BSNL.
 - This means that all of **BharatNet work being done on an India basis will come to BSNL**.
 - The government has taken this policy decision.
- If BBNL is merged with BSNL, the latter's 860,000 km of optic fibre, along with 560,000 km of fibre of BBNL's can create a large **integrated fibre network of 1.42 million km**.
- Combined with BSNL's extensive market presence across the country, this can give last mile connectivity for rural areas.
- With the merger of BBNL and BSNL, the USOF which currently stands at close to Rs 60,000 crore is likely to go to BSNL and help the state-run telco come out of its crunch.

Need of merger:

- The combined debt of BSNL/MTNL stood at Rs 59,588 crore as at January-end. Similarly, the adjusted gross revenue (AGR) dues (licence fee and spectrum usage charges) of the firms stand at Rs 43,148 crore at present. "If the firms need to survive, their balance sheets need to be repaired".
- The government is considering converting the AGR dues into equity for both BSNL and MTNL.

About BBNL:

- BBNL, a special purpose vehicle (SPV) of the Ministry of Communications, was incorporated in 2012 as a public sector unit.
- It was handed over the task of implementing the BharatNet project, which was till then known as National Optical Fibre Network (NOFN).

- BharatNet, the world's largest rural broadband project is to provide broadband connectivity to all the 2.5 lakh gram panchayats across India.
- As far as BBNL is concerned, it currently to a large extent depends upon BSNL to provide connectivity and bandwidth
- The SPV is funded from the Universal Service Obligation Fund (USOF), which is raised from a Universal Access Levy (UAL) applicable to all telecom licence holders.
- It came into effect from April 1, 2002 and mandated that all telecom service providers must pay a percentage of their revenue into the USOF.

Issue:

- All telecom operators contribute to the USOF.
- So if the government goes ahead with this merger, it will seem like only BSNL will get to use the fund. That could create problems for BBNL.
- As per telecom licence agreements, telecom service providers have to pay 8 per cent licence fee on their revenue from sale of telecom service, of which 5 per cent goes towards the USOF.

PHYSICIST EUGENE PARKER, WHO THEORIZED THE EXISTENCE OF SOLAR WIND, DIES AGED 94

◎ CONTEXT:

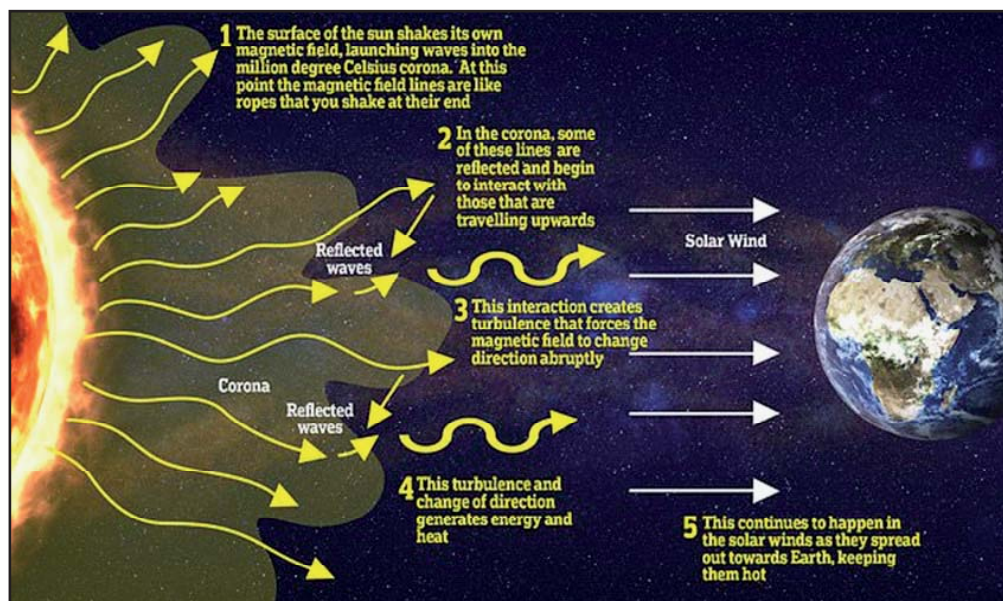
Eugene Parker, a physicist who theorized the existence of solar wind and became the first person to witness the launch of a spacecraft bearing his name, has died recently.

About Physicist Eugene Parker:

- He is hailed as a visionary in his **field of heliophysics**, focused on the study of the sun and other stars.
- He is best known for his **1958 theory of the existence of solar wind** — a supersonic flow of particles off the sun's surface.
- He was vindicated in **1962 when a NASA spacecraft mission to Venus (NASA's Mariner 2 spacecraft) confirmed his theory** and solar wind's effect on the solar system, including occasional disruptions of communications systems on Earth.
- NASA honoured Mr. Parker's scientific contributions in 2018 by naming a spacecraft after him that was destined to travel straight into the sun's crown.
 - Thus, he became the **first person to witness the launch of a spacecraft bearing his name, NASA's Parker Solar Probe.**

About Solar wind:

- The **surface of the sun** is blisteringly hot at **6,000 degrees Fahrenheit**—but its atmosphere, called the **corona**, is more than a thousand times hotter.
- The corona is so hot that the sun's gravity can't hold it, so particles are flung off into space and travel throughout the solar system in every direction.
- As the sun spins, burns and burps, it creates complex swirls and eddies of particles.
- These particles, mostly protons and electrons, are traveling about a million miles per hour as they pass Earth.
- This flow of particles, called the "solar wind".



Effects of solar wind – Aurora

- An aurora is a **natural light** display in the sky, predominantly seen in the **high latitude (Arctic and Antarctic) regions**. (This is due to magnetic field lines of earth and solar wind)
- Auroras are caused by charged particles, mainly electrons and protons, entering the atmosphere from above causing ionisation and excitation of atmospheric constituents, and consequent optical emissions.



Impact on Earth:

Solar wind has an enormous impact on our lives.

- The solar wind magnetically blankets the solar system, **protecting life on Earth** from even higher-energy particles coming from elsewhere in the galaxy.
- But the effects of storms on the sun's surface can also **affect our telecommunications networks**.
- The wind would also **pose a threat to astronauts** traveling through space.

NASA's Parker Solar Probe:

- NASA's Parker Solar Probe is the **first-ever mission to "touch" the Sun**.
- In order to unlock the mysteries of the Sun's atmosphere, **Parker Solar Probe uses Venus' gravity** during seven flybys over nearly seven years to gradually bring its orbit closer to the Sun.
 - The spacecraft will fly through the Sun's atmosphere as close as 3.8 million miles to our star's surface, well within the orbit of Mercury and more than seven times closer than any spacecraft has come before. (Earth's average distance to the Sun is 93 million miles.)

- Flying into the outermost part of the Sun's atmosphere, known as the corona, for the first time, **Parker Solar Probe employs a combination of in situ measurements and imaging to revolutionize our understanding of the corona** and expand our knowledge of the origin and evolution of the solar wind.
 - ▶ It also makes critical contributions to our ability to forecast changes in Earth's space environment that affect life and technology on Earth.
- Parker Solar Probe has three **detailed science objectives**:
 - ▶ **Trace the flow of energy** that heats and accelerates the solar corona and solar wind.
 - ▶ Determine the **structure and dynamics of the plasma** and magnetic fields at the sources of the solar wind.
 - ▶ Explore mechanisms that **accelerate and transport energetic particles**.

DAMIEN HIRST'S FORMALDEHYDE SCULPTURES, THEIR ACCEPTANCE AND CRITICISM

© **CONTEXT:** An exhibition titled **Natural History** at Gagosian Gallery in London brings together the famous formaldehyde sculptures.

About Damien Hirst:

- Damien Hirst is United Kingdom's **richest living artist**.



- He has produced some of the **most controversial artworks** of recent years, which includes the much-debated series of **formaldehyde sculptures with dead animals**.

- He became the main organiser of the group's exhibition; '**Freeze**' that took place in **1988** and caught the attention of British advertiser and collector **Charles Saatchi**.
- Following his purchase of **A Thousand Years**, Saatchi had offered to finance any piece of art that Hirst wanted to create.
 - The result was '**The Physical Impossibility of Death in the Mind of Someone Living**', a tiger shark pickled in formaldehyde in a glass case, which was exhibited in **1992** as part of the first **Young British Arts (YBA)**.

Criticism:

- Though Hirst's works using animals have been **criticised by animal rights activists**, the global art market itself is divided.
- While some animals were dead before Hirst decided to use them, others were **killed for his art**.
- In 2012, Hirst's exhibition **In and Out of Love** at Tate Modern had two windowless rooms filled with **live butterflies**, later reported that more than 9,000 butterflies died during the 23-week exhibition.
- In 2017, the art market website artnet estimated that **Hirst had used almost one million animals for his works**.

About Formaldehyde:

- Formaldehyde is a colorless, strong-smelling, flammable chemical that is produced industrially and used in building materials such as particleboard, plywood, and other pressed-wood products.
- Uses of formaldehyde:
 - When formaldehyde is dissolved in water, it is called formalin. This formalin is used as a disinfectant in industries, preservative in some food products, funeral home etc.
 - Used in industry
 - Used in medicine
 - Used in building and construction
 - Food and other uses
- Formaldehyde is found in:
 - Resins used in the manufacture of composite wood products (i.e., hardwood plywood, particleboard and medium-density fiberboard);
 - Building materials and insulation;
 - Household products such as glues, permanent press fabrics, paints and coatings, lacquers and finishes, and paper products;
 - Preservatives used in some medicines, cosmetics and other consumer products such as dishwashing liquids and fabric softeners; and
 - Fertilizers and pesticides.
 - It is a byproduct of combustion and certain other natural processes, and so is also found in:
 - Emissions from un-vented, fuel burning appliances, like gas stoves or kerosene space heaters
 - Cigarette smoke

BRAIN CENTRE TO MAP HUMAN BRAIN AT CELLULAR LEVEL LAUNCHED IN IIT-MADRAS

◎ CONTEXT:

The Indian Institute of Technology Madras recently launched the Sudha Gopalakrishnan Brain Centre which aims to map the human brain at the cellular and connectivity levels.

About the Sudha Gopalakrishnan Brain Centre:

- The centre will focus on high resolution imaging of whole human brain at '**cellular and connectivity level**'.
- The centre aims to become a world-renowned research centre, generating 'unprecedented' amounts of human brain data, scientific output and technology tools.
- It has developed a **high-throughput 'histology' pipeline** that processes whole brains into high-resolution digital atlases.
- Through this technology platform, the centre is **imaging post-mortem whole human brains of different types and ages**.
- The centre will work with **India's leading medical institutions** and global leaders in brain mapping to become a globally renowned neuroanatomy research enterprise that generates sought-after human brain data and technology tools.

Significance:

- **Data analytics and medicine:** This project is about **understanding the brain's anatomy**, allowing researchers to find new applications and give **better drugs and better interventions**.
- **Multi-disciplinary:**
 - IIT Madras plans to train hundreds of undergraduate and postgraduate students in neuroscience, computing and machine learning techniques on cutting-edge brain data.
 - The centre will **power a large-scale multi-disciplinary effort to map human brains at cellular level**.
 - It is supported by Infosys co-founder and IIT Madras' Distinguished Alumnus Kris Gopalakrishnan and his wife Sudha Gopalakrishnan. Since 2014, Gopalakrishnan has been involved in seeding research at the institute at the intersection of neuroscience and engineering.

'Knowledge economy':

- **Entrepreneurs create** the **new generation of businesses**, industry and companies; improve economic activity; and **create wealth and jobs**. They will **create a new India**.
- **Scientists and engineers are a key part of creating a \$5 trillion economy** and then a \$10 trillion economy because that's where the knowledge is created, the new intellectual property is created, and that's where this feeds in to the knowledge economy.

About Brain mapping:

- **Brain:**
 - The brain is a highly **complex organ** made up of billions of cells called **neurons**.
 - Neurons **send and receive messages** to and from all parts of your body.
 - These messages are **electrical impulses** that create brain waves.

- The brain map (also called a **neuro map**) is an important tool we use to evaluate your brainwaves and **identify opportunities to improve communication** between various regions of the brain.
- The brain map is able to capture a window of brain activity, analyze the data, and create a visual representation for each lobe of the brain and each **specific brain wave (Delta, Theta, Alpha, Beta)**.
- Brain mapping is specifically defined as the **study of the anatomy and function of the brain and spinal cord** through the use of imaging, immunohistochemistry, molecular & optogenetics, stem cell and cellular biology, engineering, neurophysiology and nanotechnology.
- Brain mapping includes a **variety of techniques and technologies** used to study, scan, and map electrical activity within the brain.
- Brain mapping tools can either study the **brain's structure or function** through examining the physical layout of the brain or by measuring where and how electrical activity takes place within its tissues.

WORLD SPARROW DAY

© CONTEXT:

World Sparrow Day (WSD) is celebrated every year on March 20th.

About World Sparrow Day:

- World Sparrow Day aims to **raise awareness and protect the common house sparrows**, which are not so commonly seen now due to increasing noise pollution.
- The day also has a **broader vision to provide a platform** where people who are working on the conservation of the House Sparrow and other common birds can **network, collaborate and exchange conservation ideas** which will lead to better science and improved results.
- World Sparrow Day is an initiative started by the **Nature Forever Society of India along with the Eco-Sys Action Foundation of France**.
 - The Society was started by a dedicated conservationist **Mohammed Dilawar**.
 - He was named by the Time as one of the **"Heroes of the Environment"** in 2008.
- The **first World Sparrow Day** was organised in 2010.
- In 2011, the World Sparrow Awards were established.
 - The award recognises persons who have made significant contributions to environmental conservation and ordinary species protection.

World Sparrow Day 2022: Theme

The theme for World Sparrow Day this year is **"I love sparrows"** and attempts to unite people from all walks of life who share the sentiment to accelerate community-driven conservation efforts focused on sparrows.

About the sparrow:

- The sparrow, especially the **common house sparrow**, is one of the most ubiquitous birds on earth and is also **one of the oldest companions of human beings**.

- It has, over a period of time, evolved with us. Fortunately, they are still found in abundance in many parts of the world.
 - **Common name:** House sparrow
 - **Scientific name:** Passer domesticus
 - **Height:** 16 centimeter
 - **Wingspan:** 21 centimeter
 - **Weight:** 25-40 grams



BOMA TECHNIC TO BE USED IN KANO NATIONAL PARK

◎ **CONTEXT:** African Cheetahs to be fed through traditional Boma technique in Kuno National Park.

About Boma technique:

- The Boma capturing technique, which is popular in Africa, involves luring of animals into an enclosure by chasing them through a funnel-like fencing.
- The funnel tapers into an animal selection-cum-loading chute, supported with grass mats and green net to make it opaque for animals, which are then herded into a large vehicle for transport to another location.
- This old technique was earlier utilised to capture wild elephants for training and service.

About Cheetah:

- The cheetah, *Acinonyx jubatus*, is one of the **oldest of the big cat species**, with ancestors that can be traced back more than five million years to the Miocene era.
- The cheetah is also the **world's fastest land mammal**.
- It is listed as **vulnerable** in **IUCN red listed species**.
- The country's last spotted feline died in Chhattisgarh in 1947. Later, the cheetah — which is the fastest land animal — was **declared extinct in India in 1952**.
- **The Asiatic cheetah is classified as a "critically endangered"** species by the IUCN Red List, and is believed to survive only in Iran.

See Image on Next Page:

Re-introducing Cheetah in India:

- The project to **translocate cheetahs from Africa to India** is a long-term one being implemented by the environment ministry with the help of the Wildlife Institute of India.
- The **Supreme Court** appointed an expert panel, which **approved Kuno Palpur as the possible location for cheetah relocation**.
- In the past six months, the Madhya Pradesh forest department has relocated villagers from Kuno and has prepared an enclosure with round-the-clock surveillance for reintroduction of cheetahs.

About Kuno National Park:

- Kuno National Park has spread over an area of 748.76 sq. km.



Front Hind

75mm



Cubs:
Typically have a litter of 3 cubs



Species	Lifespan (Years)
Human	75
Cat	17

Vu

**DID
YOU
KNOW?**

Cheetahs can reach speeds of 110 kilometres/hour (68 miles/hour)

www.krugerwildlifesafaris.com

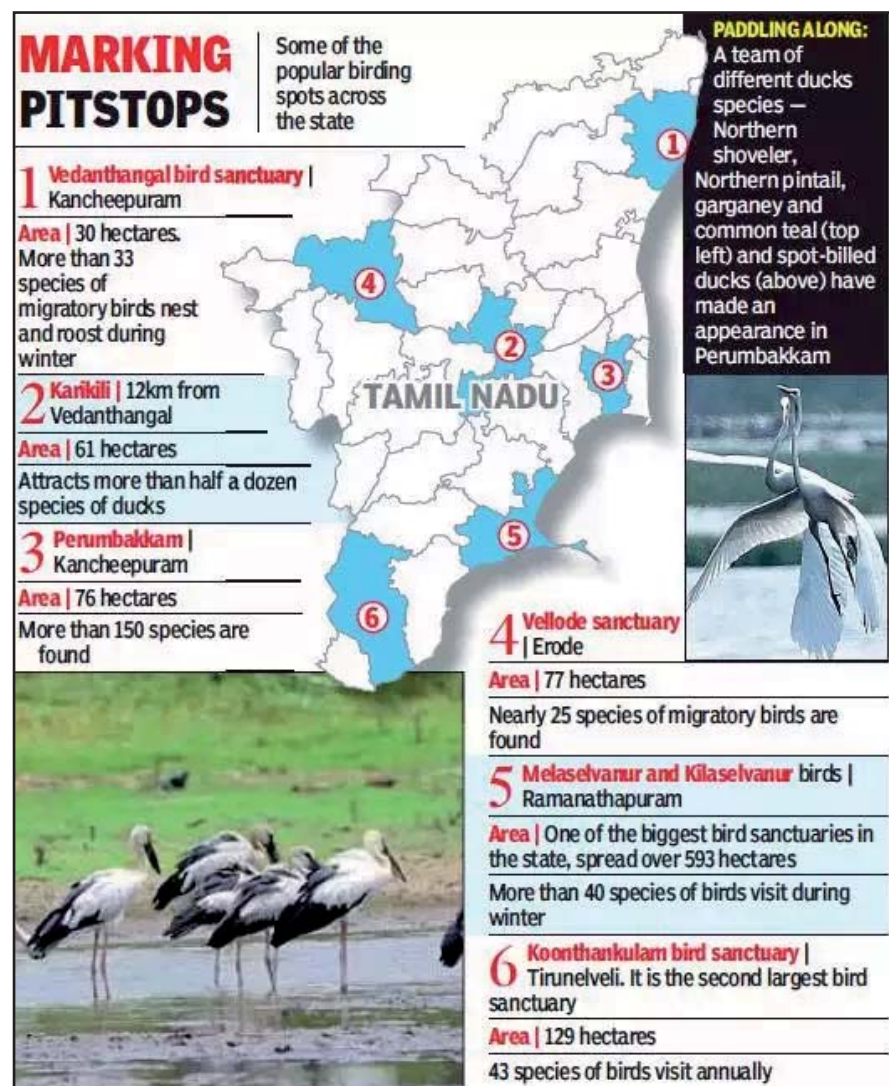
- It is located in the **Sheopur district of Madhya Pradesh**.
- Kuno River, one of the major **tributaries of Chambal River** flows through the entire length bisecting the National Park division.
- Kuno Park is **known for the leopard, Jackal, Chinkara**.
- Wildlife Institute of India and **Wildlife Trust of India** had **shortlisted** Palpur-Kuno Park as **habitats for Cheetahs and Asiatic lions**.
- Cheetah which once roamed in the northern plains of India became extinct in India in 1948.
- Plans to reintroduce Cheetah in Kuno National Park from South Africa are underway.
- The Kuno has the potential to carry populations of all four of India's big cats the tiger, the leopard, the Asiatic lion and also cheetah, all four of which have coexisted within the same habitats historically before they were exhausted thanks to overhunting and habitat destruction.

SUN PHARMA'S EXPANSION PROJECT NEAR TAMIL NADU'S VEDANTHANGAL BIRD SANCTUARY SET TO GET GREEN NOD

◎ CONTEXT:

The Environment Ministry's Expert Appraisal Committee has recommended grant of environment clearance for Sun Pharmaceuticals Industries Ltd.'s expansion project in the Madurantakam taluk, around 3.7 km from the Vedanthangal Bird Sanctuary.

About Vedanthangal Bird Sanctuary:



- Vedanthangal, declared as a bird sanctuary in 1936 in Tamil Nadu, is known as the oldest in India.
- The sanctuary was notified as RF (Reserve Forest) in 1963 under the Madras Act 1882. Finally in 1998, the sanctuary was notified under section 26(i) of the Wildlife Protection Act 1972.
- A tank having a compact grove of Barringtonia and Acacia nilotica trees Dry evergreen scrub and thorn forests.

- The birds nest on the branches of submerged trees. Storks, Egrets, Cormorants, Darter, Flamingos, Pelicans, moor hens, herons, kingfishers, sandpipers, white ibis, spoonbills, swans and grey wagtails are some of the birds which arrive here during season.

ONDC TO DEMOCRATISE E-COMMERCE AND HELP PROTECT SMALL BUSINESSES

◎ CONTEXT:

Union Commerce and Industry Minister recently said Open Network for Digital Commerce (ONDC) would democratize e-commerce and will protect small businesses by granting them equal opportunity.

About Open Network for Digital Commerce (ONDC):

- Open Network for Digital Commerce christened ONDC is globally **first-of-its-kind initiative** that aims to **democratise Digital Commerce**, moving it from a **platform-centric model** to an **open-network**.
- It aims to ensure that small retailers get an equal opportunity to engage with big firms, protect their businesses and serve customers with modern ways of delivery system.
- **As UPI is to the digital payment domain, ONDC is to e-commerce in India.**
- It will enable **buyers and sellers** to be **digitally visible** and transact through an open network, no matter what platform/application they use.
- ONDC **received its certificate of incorporation as a private sector non-profit company** in December, 2021.
 - A number of established companies have integrated with the platform.
- The platform will provide opportunities for **new start-ups to start creating a network of sellers**, provide service to local areas, and increase competition.

Aims and objectives:

- ONDC aims at promoting open networks developed on open-sourced methodology, using open specifications and open network protocols independent of any specific platform.
- ONDC is expected to digitize the entire value chain, standardize operations, promote inclusion of suppliers, derive efficiencies in logistics and enhance value for consumers.



About open-source:

- Making software or a process open-source means that the **code or the steps of that process is made available freely for others to use, redistribute and modify.**

- An open-source project means that anybody is free to use, study, modify and distribute the project for any purpose.
- These permissions are **enforced through an open-source licence easing adoption and facilitating collaboration.**
- For example, while the operating system of **Apple's iPhones — iOS — is closed source**, meaning it cannot be legally modified or reverse engineered.
 - **Google's Android operating system is open-source**, and therefore it is possible for smartphone OEMs such as Samsung, Xiaomi, OnePlus, etc to modify it for their hardware.

SECTION: C

(QUICK FACTS)

RUSSIA USES KINZHAL AND BASTION MISSILES ON UKRAINE

◎ **CONTEXT:** Russia recently used hypersonic Kinzhal (Dagger) missiles to destroy a large weapons depot in Ukraine's western Ivano-Frankivsk region.

About Kinzhal Missile:

- Kinzhal means 'dagger'.
- It is a nuclear-capable air-launched ballistic missile that flies at 10 times the speed of sound and can overcome air-defence systems.
- **Range:** Approximately 1,500-2,000km and can carry a payload of 480 kg.
- Following the launch, the Kinzhal rapidly accelerates to Mach 4 (4,900 km/h), and may reach speeds of up to Mach 10 (12,350 km/hr).



ABEL PRIZE FOR 2022 GOES TO AMERICAN MATHEMATICIAN DENNIS P. SULLIVAN

◎ **CONTEXT:** The Norwegian Academy of Science and Letters has awarded the Abel prize for the year 2022 to American Mathematician Dennis Parnell Sullivan.

The Abel Prize: International Prize of Mathematics:

- The Abel Prize is named after **Niels Henrik Abel**, Norway's greatest mathematician throughout the times.
- Abel left lasting marks on the mathematical world.
- His mathematics has served as a base for a number of major technological breakthroughs, there amongst the development of the internet.
- The Abel Prize was established by the **Norwegian Parliament (The Storting) in 2002**, on the occasion the 200-year anniversary of his birth.
- The Prize is **7.5 million Norwegian Kroner**; award prize money enhanced from 6 million NOK to 7.5 million NOK in 2019.

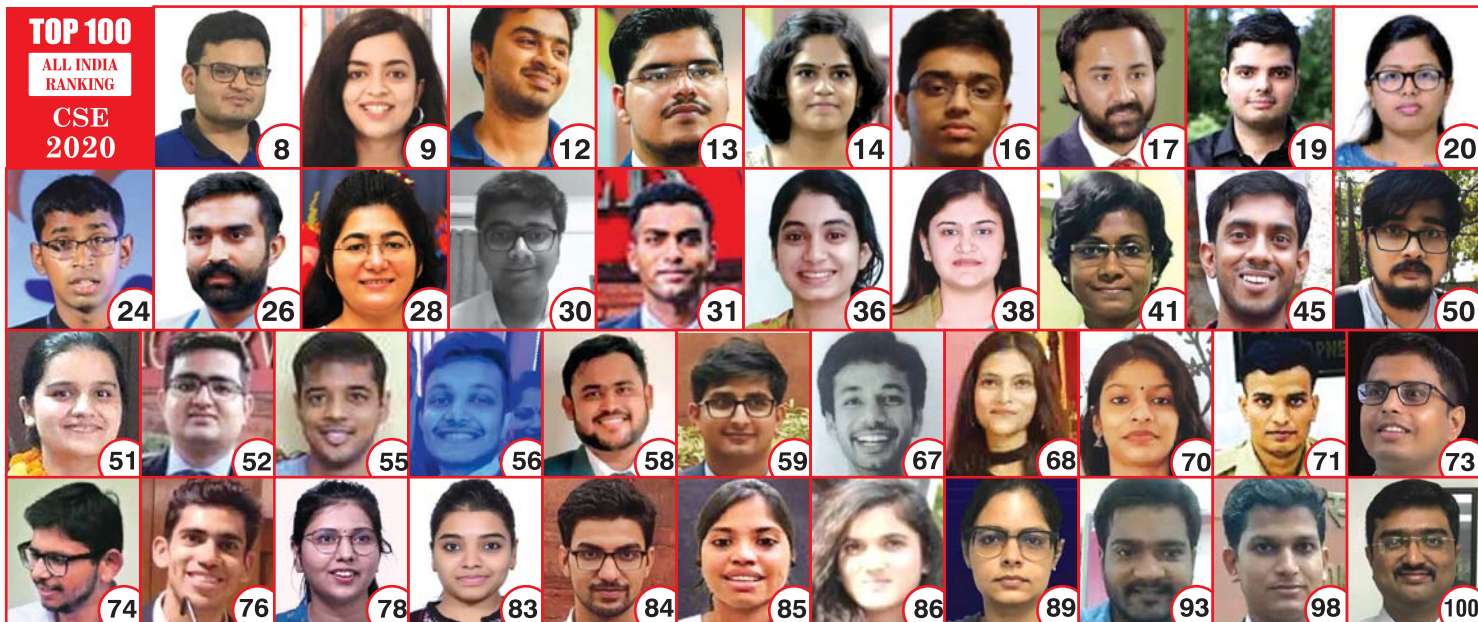
- The Prize is awarded by **The Norwegian Academy of Science and Letters**, on behalf of the Ministry of Education.

36-MILLION-YEAR-OLD WHALE FOSSIL FOUND IN PERUVIAN DESERT

◎ **CONTEXT:** Palaeontologists recently unveiled the fossilized remains of an ancient whale that inhabited the seas 36 million years ago, found last year in a Peruvian desert.

About the fossil:

- The basilosaurus was found at the end of 2021 in the Ocucaje Desert, about 350 Km south of Lima.
 - It is located in the southern part of the **Province of Ica, Peru.**
- The desolate landscape was a shallow sea millions of years ago, and its dunes have yielded large numbers of striking primitive sea mammal remains.
- The "Ocucaje Predator," was about 17 meters (55 feet) long and used its massive, powerful teeth to feed on tuna, sharks and schools of sardines.



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