

CURRENT AFFAIRS

WEEKLY

WEEK: 2
SEPTEMBER
2023

MAINS

GS- II

- 43RD ASSOCIATION OF SOUTH EAST ASIAN NATIONS (ASEAN) SUMMIT
- G20 BECOMES G21
- INDIA-US BILATERAL TALKS ON TRADE SETTLEMENT
- INDIA-MIDDLE EAST-EUROPE ECONOMIC CORRIDOR (IMEC)
- THE NEW DELHI DECLARATION
- STRIKING DOWN 'SECTION 6A' OF DSPE ACT IS RETROSPECTIVE: SC
- RAJASTHAN GOVERNOR'S ASSENT SOUGHT FOR SOCIAL SECURITY BILLS
- VIDYA SAMIKSHA KENDRAS
- SC REFERS CHALLENGE TO SEDITION LAW TO CONSTITUTION BENCH
- 'FRATERNITY' AS ENSHRINED IN THE CONSTITUTION

GS- III

- SELF-REGULATORY ORGANISATION FOR FINTECHS
- GRESHAM'S LAW
- GLOBAL APPROACH TO REGULATE CRYPTOCURRENCIES
- RISING HEAT INDEX IN IRAN
- GLOBAL BIOFUELS ALLIANCE (GBA)
- GENETIC ENGINEERING GIVES MOSQUITO CONTROL AN UPGRADE
- IISC DEVELOPS NEW NANOPARTICLE FOR CANCER TREATMENT

PRELIMS

ART & CULTURE

- Odisha's Konark Wheel
- Plan to revive maritime heritage

HISTORY

- Shivaji's historic Wagh Nakh

POLITY &

GOVERNANCE

- Ayushman Bhav Campaign
- Disability certificate' for Sickle cell patients

ECONOMY

- RBI decides to discontinue I-CRR

- Pearl millet cultivation zones in India

ENVIRONMENT

- Heatwaves leading to ozone pollution
- Global Stocktake Report
- Planetary boundaries

SCIENCE & TECHNOLOGY

- India's deep-sea submersible Matsya 6000
- Nipah Virus outbreak in Kerala

NEWS IN SHORT

- Shiva's Nataraja form
- 75th anniversary of Operation Polo
- Banglar Mati Banglar Jol
- Cheriyal scroll painting
- Morocco quake
- Badai Bazaar
- Payments Council of India (PCI)
- Skill India Digital Platform
- Swachh Vayu Sarvekshan 2023
- Fast infinitesimal time coalescent process"
- (FitCoal) method
- Bharat Bill Payment System (BBPS)
- Govt relaxes import duty
- Nifty 50 crosses historic 20,000 milestone
- First herpetofaunal survey
- World Electrical Vehicle (EV) Day
- Shanti Swarup Bhatnagar Prizes for 2022
- Idukki dam
- Atlas Mountains

SPECIALS

- G20 Summit 2023

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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

WEEK - 2 (SEPTEMBER, 2023)

Section - A: MAINS CURRENT AFFAIRS			
Area of GS		Topics in News	Page No.
GS II	INTERNATIONAL RELATIONS	• 43rd Association of South East Asian Nations (ASEAN) Summit	02
		• G20 becomes G21	03
		• India-US Bilateral Talks on Trade Settlement	04
		• India-Middle East-Europe Economic Corridor (IMEC)	05
		• The New Delhi Declaration	06
	POLITY & GOVERNANCE	• Striking down 'Section 6A' of DSPE Act is retrospective: SC	07
		• Rajasthan Governor's assent sought for social security Bills	08
		• Vidya Samiksha Kendras	09
		• SC refers challenge to sedition law to Constitution Bench	10
		• 'Fraternity' as enshrined in the Constitution	11
	GS III	ECONOMY	• Self-Regulatory Organisation for Fintechs
• Gresham's law			13
• Global approach to regulate cryptocurrencies			14
ENVIRONMENT		• Rising Heat index in Iran	15
		• Global Biofuels Alliance (GBA)	16
SCIENCE & TECHNOLOGY		• Genetic engineering gives mosquito control an upgrade	18
		• IISc develops new nanoparticle for cancer treatment	20
Section - B: SPECIAL			
Area of GS		Topics in News	Page No.
GS II	INTERNATIONAL RELATIONS	• G20 Summit 2023	22



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Section - C: PRELIMS CURRENT AFFAIRS			
Area of GS		Topics in News	Page No.
GS I	ART & CULTURE	• Odisha's Konark Wheel	27
		• Plan to revive maritime heritage	27
	HISTORY	• Shivaji's historic Wagh Nakh	28
GS II	POLITY & GOVERNANCE	• Ayushman Bhav Campaign	30
		• Disability certificate for Sickle cell patients	30
	ECONOMY	• RBI decides to discontinue I-CRR	31
		• Pearl millet cultivation zones in India	32
GS III	ENVIRONMENT	• Heatwaves leading to ozone pollution	34
		• Global Stocktake Report	34
		• Planetary boundaries	35
	SCIENCE & TECHNOLOGY	• India's deep-sea submersible Matsya 6000	36
		• Nipah Virus outbreak in Kerala	36
Section - D: SHORT NEWS			
Area of GS		Topics in News	Page No.
HISTORY		• Shiva's Nataraja form	40
		• 75th anniversary of Operation Polo	40
		• Banglar Mati Banglar Jol	41
ART AND CULTURE		• Cherial scroll painting	41
GEOGRAPHY		• Morocco quake	42
POLITY & GOVERNANCE		• Badai Bazaar	43
		• Payments Council of India (PCI)	43
		• Skill India Digital Platform	44
ENVIRONMENT		• Swachh Vayu Sarvekshan 2023	44
ECONOMY		• Fast infinitesimal time coalescent process" (FitCoal) method	45
		• Bharat Bill Payment System (BBPS)	46
		• Govt relaxes import duty	46
		• Nifty 50 crosses historic 20,000 milestone	47
ENVIRONMENT		• First herpetofaunal survey	47
		• World Electrical Vehicle (EV) Day	48
MISCELLANEOUS		• Shanti Swarup Bhatnagar Prizes for 2022	48
LOCATION IN NEWS			
		• Idukki dam	48
		• Atlas Mountains	49

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Section A [MAINS]

- ☞ 43rd Association of South East Asian Nations (ASEAN) Summit
- ☞ G20 becomes G21
- ☞ India-US Bilateral Talks on Trade Settlement
- ☞ India-Middle East-Europe Economic Corridor (IMEC)
- ☞ The New Delhi Declaration
- ☞ Striking down 'Section 6A' of DSPE Act is retrospective: SC
- ☞ Rajasthan Governor's assent sought for social security Bills
- ☞ Vidya Samiksha Kendras
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- ☞ Gresham's law
- ☞ Global approach to regulate cryptocurrencies
- ☞ Rising Heat index in Iran
- ☞ Global Biofuels Alliance (GBA)
- ☞ Genetic engineering gives mosquito control an upgrade
- ☞ IISc develops new nanoparticle for cancer treatment



43RD ASSOCIATION OF SOUTH EAST ASIAN NATIONS (ASEAN) SUMMIT

Context: The 43rd Association of Southeast Asian Nations Summit concluded in Jakarta, Indonesia, with the adoption of the ASEAN Leaders' Declaration on ASEAN as an Epicentrum of Growth.

About ASEAN:

- ◆ The **Association of Southeast Asian Nations (ASEAN)** is a regional grouping that aims to promote economic and security cooperation among its **ten members**: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.
 - ▶ India including the **U.S., China, Japan, and Australia** are its **dialogue partners**.
- ◆ **Establishment:** It was established on 8 August 1967 in Bangkok, Thailand, with the signing of the ASEAN Declaration (Bangkok Declaration) by the **founding fathers of ASEAN: Indonesia, Malaysia, Philippines, Singapore, and Thailand**.
- ◆ **Aim:** The motto of ASEAN is "**One Vision, One Identity, One Community**".
- ◆ **Secretariat:** Jakarta, Indonesia.
- ◆ ASEAN countries have a total population of 662 million people and a combined gross domestic product (GDP) of \$3.2 trillion as of 2022.

Key points from the summit:

- ◆ India emphasized a rules-based post-COVID world order, highlighting the importance of a **free Indo-Pacific and Global South's voice**.
- ◆ India reaffirmed that ASEAN is the central pillar of **India's Act East Policy** and it fully supports ASEAN centrality and its outlook on **the Indo-Pacific**.
- ◆ India also mentioned the need for a **Code of Conduct for the South China Sea** should be effective and compliant with the **U.N. Convention on the Law of the Sea (UNCLOS)**.
- ◆ India emphasized its **Look East policy**, as mentioned in the recent **East Asia Summit** held in July.

East Asia Summit is the premier forum in the **Asia-Pacific region** to deal with issues relating to security and defense. Since its inception in 2005, it has played a significant role in the strategic, geopolitical, and economic evolution of East Asia.

Major Proposals

Connectivity between India and Southeast Asian nations:

- Bangladesh-China-India-Myanmar (BCIM)
- Kaladan Multi-Modal Transit Transport Project (KMMTTP)
- Mekong-India Economic Corridor (MIEC)

- ◆ India proposed a '**multi-modal connectivity and economic corridor**' linking Southeast Asia (SEA), India, West Asia, and Europe during the ASEAN-India Summit in Indonesia, as part of a **12-point plan** to enhance relations with ASEAN (Association of Southeast Asian Nations) economies.
- ◆ It also announced the opening of the embassy of India in **Timor-Leste** has also been announced by India.
 - ▶ Timor-Leste is an **observer in the ASEAN**.
- ◆ The two sides agreed to deepen their comprehensive strategic partnership with concrete actions through practical implementation of the 'Plan of Action' to implement the ASEAN-India partnership for peace, progress and shared prosperity.

Significance of ASEAN for India:

- ◆ ASEAN-India dialogue relations started with the establishment of a sectoral partnership in 1992. This graduated to a full dialogue partnership in December 1995 and a summit-level partnership in 2002. The ties were elevated to a strategic partnership in 2012.
- ◆ **Trade relations:** The European Union (EU) is India's third largest trading partner, while India-ASEAN bilateral trade stood at 131.5 billion dollars in 2022-23.
- ◆ **India-Myanmar-Thailand Trilateral Highway:** Towards its east, India is part of a push to develop a **highway connecting the country to Myanmar and Thailand**.
 - ▶ The **1,400-km highway**, first proposed in 2002, is expected to link India to the two SEA nations by land.
- ◆ **Potential market:** ASEAN constitutes the 3rd largest market in the world. This can help India utilize its export potential.
- ◆ **Convergence with Indo-Pacific strategy:** ASEAN is a crucial component of India's "Act East" policy and its "Indo-Pacific" strategy, reflecting the convergence of interests in the region.
- ◆ **Countering China's influence:** Strengthening relations with ASEAN countries can serve as a counterbalance to China's influence in the region.

- ◆ **Connectivity with North East:** Connectivity initiatives with ASEAN can boost economic development in India's northeastern states by positioning them as a hub for regional trade and commerce.
- ◆ **Important for rule-based order:** ASEAN plays a central role in promoting a rules-based security architecture in the Indo-Pacific region, which is essential for the region's stability and prosperity.

G20 BECOMES G21

Context: The African Union (AU) has been granted permanent membership in the group of 20 largest economies (G20) worldwide. Now, the 55-member AU and the European Union are the only two regional bodies in the G-20.

Background:

- ◆ Over the past few months, Prime Minister Modi has been actively advocating for the African Union's inclusion as a **member of the G20**.



- ◆ Initially, the idea was conceived after the 'Voice of the Global South' Summit in January 2023, in which most of the African Union's 55 countries participated.
- ◆ The verbal support of at least eight countries, including the **United States (US), Germany, Brazil, China and Russia**, had already strengthened the African Union's bid.

About the African Union (AU):

- The African Union (AU) is a continental body consisting of the 55 member states that make up the countries of the African Continent.
- It was officially launched in 2002 as a successor to the Organisation of African Unity (OAU, 1963-1999).
- **Headquarters:** Addis Ababa, Ethiopia

How Africa is evolving?

- ◆ **Rise and shine:** Permanent G20 membership signals

the rise of a continent whose young population of 1.3 billion is set to double by 2050 and make up a quarter of the planet's people.

- ◆ **Meaningful role:** The AU's 55 member states, which include the disputed Western Sahara, have pressed for meaningful roles in the global bodies that long represented a now faded post-World War II order, including the United Nations Security Council.
- ◆ **Voice for reforms:** They also want reforms to a global financial system - including the World Bank and other entities - that forces African countries to pay more than others to borrow money, deepening their debt.
- ◆ **Investments:** Africa is increasingly courting investment and political interest from a new generation of global powers beyond the U.S. and the continent's former European colonizers.

- China is Africa's largest trading partner and one of its largest lenders.
- Russia is its leading arms provider. Gulf nations have become some of the continent's biggest investors.
- Turkey's largest overseas military base and embassy are in Somalia.
- Israel and Iran are increasing their outreach in search of partners.

- ◆ **Challenging the image:** African leaders have impatiently challenged the framing of the continent as a passive victim of war, extremism, hunger and disaster that's pressured to take one side or another among global powers. Some would prefer to be brokers, as shown by African peace efforts following Russia's invasion of Ukraine.
- ◆ Granting the African Union membership in the G20 is a step that recognizes the continent as a global power in itself.

India, China compete

- China is the largest trading partner for the African continent overall and the fourth-biggest source of international investment.
- Bilateral trade between China and Africa stood at about \$282 billion in 2022, whereas trade between India and Africa stood at nearly \$98 billion in 2022-23 according to government data from Beijing and New Delhi, respectively.
- There is a degree of competition for influence in Africa — not only between India and China, but also other partners operating in the region such as the US, EU, Brazil, Turkey, UAE, Japan, Indonesia and so on.

What does the AU bring to the G20?

- ◆ **Representation of largest FTA:** With full G20 membership, the AU can represent a continent that's home to the world's largest free trade area.
- ◆ **Resource rich:** It's also enormously rich in the resources the world needs to combat climate change, which Africa contributes to the least but is affected by the most.
- ◆ **Renewables and minerals:** The African continent has 60% of the world's renewable energy assets and more than 30% of the minerals key to renewable and low-carbon technologies.
 - ▶ Congo alone has almost half of the world's cobalt, a metal essential for lithium-ion batteries.

India-Africa Relations:

- ◆ **Social Infrastructure:** The India-Africa social infrastructure (education, health, skills) cooperation is multidimensional, comprehensive, and involves national, state, and subnational actors working toward augmenting African institutional and individual capacities.
- ◆ **Common Geo-Political Interests:** India and Africa have common interests on international issues, UN reforms, counter-terrorism, peacekeeping, cybersecurity, and energy security.

Operation Sahayata 19

- India provides Humanitarian Assistance and Disaster Relief (HADR) support to Mozambique.

Operation Vanilla

- Indian Navy on January 28 launched 'Operation Vanilla' in support of the national disaster in flood-hit Madagascar and diverted a large amphibious ship to provide assistance.

- ◆ **Economic Cooperation:** In the last decade and a half, trade between India and Africa has multiplied and diversified—bilateral trade of USD63.3 billion in 2018-19 made India the third-largest trading partner for the continent.

What is the importance of Africa for India?

- ◆ The end of the Cold War presented new opportunities for India to interact with Africa. India's rapid economic growth needed new markets and access to resources. As a result, economic engagement with Africa has become central to India's new approach.
- ◆ This is related to India's search for energy security, in which Africa is playing an increasingly important role.
- ◆ India is seeking diversification of its oil supplies away from the Middle East and Africa can play an important role in India's energy matrix.

- ◆ By helping the African Union earn a seat at the G20 table, India has emerged as a champion of the Global South. The announcement that the AU will join the G20 comes as India and China are competing for greater influence.



INDIA-US BILATERAL TALKS ON TRADE SETTLEMENT

Context: During the bilateral talks in New Delhi amid the US President's visit, India and the United States announced the settlement of the seventh and final outstanding World Trade Organization (WTO) dispute between the two nations.

Key-highlights of the development

The six disputes that have been already settled include;

- Countervailing measures on certain hot-rolled carbon steel flat products from India,
- Certain measures relating to solar cells and modules, and
- Measures relating to the renewable energy sector,
- India's export-related measures,
- Certain measures on steel and aluminum products and
- Additional duties on some products from the US.

- ◆ The **six previous disputes** were resolved during PM Modi's state visit to the US.
- ◆ Now, the only remaining issue of the poultry case has also been resolved.
- ◆ As part of the agreement, India also agreed to **reduce tariffs on certain U.S. products**, including **frozen turkey, frozen duck, fresh blueberries and cranberries, frozen blueberries and cranberries, dried blueberries and cranberries, and processed blueberries and cranberries**.
- ◆ These **tariff cuts** will expand economic opportunities for U.S. agricultural producers in a critical market and help bring more U.S. products to customers in India.
- ◆ India also agreed to reduce tariffs on certain U.S. products, including **chickpeas, lentils, almonds, walnuts, apples, boric acid, and diagnostic reagents**.

WTO and dispute resolution:

- ◆ Dispute settlement is the central pillar of the **multilateral trading system**, and the WTO's unique contribution to the **stability of the global economy**.

- ◆ Without a means of settling disputes, the **rules-based system** would be less effective because the rules could not be enforced.
- ◆ The WTO's procedure underscores the **rule of law**, and it makes the trading system more secure and predictable.
- ◆ The system is based on **clearly defined rules, with timetables for completing a case**.
- ◆ First rulings are made by a **panel and endorsed** (or rejected) by the WTO's full membership. Appeals based on points of law are possible.

The World Trade Organization (WTO):

- The WTO is an **international organization** established in 1995, succeeding the General Agreement on Tariffs and Trade (GATT).
- It is headquartered in **Geneva, Switzerland**, and serves as the **global body** responsible for regulating international trade.
- **Objective:**
 - ▶ The primary objective of the WTO is to **promote and facilitate international trade** by reducing trade barriers and tariffs.
 - ▶ Member countries engage in negotiations to liberalize trade and establish rules governing trade-related aspects such as tariffs, subsidies, and trade dispute resolution.
- **Principles of the WTO:**
 - ▶ **Non-discrimination** (the most-favored-nation principle), which ensures that any trade advantage granted to one member must be extended to all members.
 - ▶ **National treatment**, ensuring that foreign and domestic products are treated equally.
 - ▶ **Freer trade:** gradually, through negotiation.
- The WTO provides a **mechanism for resolving trade disputes** among member countries.

India-US trade relations

- ◆ In 2021, overall U.S.-India bilateral trade in **goods and services** reached a record 157 billion dollars.
- ◆ The United States is India's largest trading partner and most **important export market**.
- ◆ Many U.S. companies view India as a critical market and have expanded their operations there.
- ◆ Likewise, Indian companies seek to increase their presence in U.S. markets and at the end of 2020, Indian investment in the United States totaled 12.7 billion dollars, supporting over 70,000 American jobs.
- ◆ The nearly 200,000 Indian students in the United States contribute \$7.7 billion annually to the U.S. economy.



INDIA-MIDDLE EAST-EUROPE ECONOMIC CORRIDOR (IMEC)

Context: India and Saudi Arabia have joined the European Union and the United States in launching the Partnership for Global Infrastructure and Investment (PGII) and India-Middle East-Europe Economic Corridor.

India-Middle East-Europe Economic Corridor:

- ◆ In a bid to stimulate economic development through enhanced connectivity and economic integration, India, along with **other members of the G20**, has entered into a historic memorandum of understanding (MoU) to develop an India-Middle East-Europe economic corridor.
- ◆ The project is a part of the **Partnership for Global Infrastructure Investment (PGII)** — a West-led initiative for **funding infrastructure projects** across the world.
- ◆ **Objective:** The corridor aims to provide a reliable and cost-effective **ship-to-rail transit network** between **Asia, Middle East and Europe**.
- ◆ **Proposals:** The corridor will comprise of **two separate corridors**,
 - ▶ **The Eastern corridor** - will connect India to the Arabian Gulf.
 - ▶ **The Northern corridor**- will connect the Arabian Gulf to Europe.
- ◆ **Member Nations:** Apart from India, the other participants will include **Saudi Arabia, UAE, France, Germany, Italy, USA and the European Union**.



- ◆ **Components of the project:**
 - ▶ The arrangement will include a **railway route** that, upon completion, will provide a **reliable and cost-effective cross-border ship-to-rail transit**

network to supplement **existing maritime and road transport routes**.

- ▶ This will enable **goods and services** to transit to, from, and between **India, the UAE, Saudi Arabia, Jordan, Israel, and Europe**.
- ▶ Along the railway track, the members want to lay a **cable for clean hydrogen export**.
- ◆ **Key functions:**
 - ▶ This corridor will **safeguard regional supply chains**, boost **trade accessibility**, and enable a greater emphasis on environmental, social, and governance consequences.
 - ▶ It will be designed to **increase efficiencies, save costs, promote economic cohesion, create jobs**, and reduce greenhouse gas emissions, leading to a radical integration of Asia, Europe, and the Middle East.
- ◆ **Intended Timeline:** As per the MoU, the members intend to meet within the **next sixty days** to develop and commit to an action plan with relevant timetables.
 - ▶ However, although the memorandum sets forth political commitments of its participants, it does **not create any rights or obligations** under international law, which means that the members are not necessarily bound by it.

The EU, through its **Global Gateway programme**, has announced to activate **300 billion** of investments in critical connectivity projects during the period 2021-2027.

- ◆ **Significance:**
 - ▶ It is seen as a counter to **China's Belt and Road Initiative (BRI)**.
 - ▶ Key for **connectivity of Global South**.
 - ▶ Strengthening supply chains amid **Russia-Ukraine War**.

Partnership for Global Infrastructure Investment (PGII):

- The infrastructure plan was first announced in **June 2021** during the G7 (or Group of Seven) summit in the UK.
- The G7 countries include the **United Kingdom, the United States, Canada, France, Germany, Italy, Japan, and the European Union (EU)**.
- US President had called it the **Build Back Better World (B3W) framework**.
- In 2022, during the **G7 summit in Germany**, the PGII was officially launched as a joint initiative to help fund infrastructure projects in developing countries through **public and private investments**.

Similar Initiatives:

- ◆ **China's Belt and Road Initiative (BRI):** It was launched by China in **2013**.
- ◆ The BRI consists of **two main components**:
 - ▶ **The Silk Road Economic Belt**, which is a land-based network connecting China to Europe through Central Asia and the Middle East, and
 - ▶ **The 21st Century Maritime Silk Road**, which is a sea-based network linking China to Southeast Asia, South Asia, Africa, and Europe via the South China Sea and the Indian Ocean.
- ▶ This initiative spans multiple continents, with projects in **over 70 countries**.
- ◆ India, however, opposed the BRI as it included the **China-Pakistan Economic Corridor**, which connected **Kashgar in China** with the **Gwadar port in Pakistan via Pakistan-occupied Kashmir**.



THE NEW DELHI DECLARATION

Context: **The G-20 Leader's New Delhi Declaration acknowledges the substantial financial requirements of 5.8-5.9 trillion dollars for developing countries before 2030 and 4 trillion dollars annually for clean energy to achieve net-zero emissions by 2050.**

Key Highlights of New Delhi Declaration:

- ◆ **G-20 Welcomes 'African Union':** The Group of 20 (G-20) annual summit welcomed the **African Union** as a member, marking an important development in global economic cooperation.
- ◆ **Avoiding Condemnation of Russia:** The summit did not explicitly condemn Russia for its war in Ukraine but called on **all states to refrain** from using force to seize territory.
- ◆ **UN Charter Principles:** The G-20 emphasized the importance of **abiding by the principles of the United Nations Charter** and declared the use or threat of nuclear weapons as 'inadmissible.'
- ◆ **Humanitarian Aid for Ukraine:** The declaration urged Russia and Ukraine to ensure the immediate and unhindered delivery of **essential goods, including grains and fertilizers**, to meet the demands of developing and least developed countries, particularly in Africa.
- ◆ **Protection of Food and Energy Infrastructure:** The G-20 called for a halt to military destruction and attacks on **food and energy infrastructure** and expressed concerns about high volatility in food and energy markets.

- ◆ **Phasedown of Coal:** Member countries committed to a “phasedown” of coal usage in line with their national circumstances. They also pledged to **triple renewable energy sources by 2030**.
- ◆ **Climate Finance:** Developing countries require \$5.8 to \$5.9 trillion in the pre-2030 period to meet their climate goals. The world needs an additional \$4 trillion annually by 2030 to achieve the **net-zero carbon emission goals by 2050**.
- ◆ **Financial Reforms:** The New Delhi Declaration called for reforms in international financial institutions, addressing debt vulnerabilities in low and middle-income countries, and initiating the exchange of tax-relevant information on crypto assets by 2027.
 - ▶ It stressed the importance of well-calibrated monetary, fiscal, financial, and structural policies to promote growth, reduce inequalities, and maintain economic stability.

Significance:

- ◆ **Geopolitical Diplomacy:** The declaration’s avoidance of direct condemnation of Russia for the war in Ukraine is notable. It reflects the complex geopolitical dynamics at play and the G-20’s effort to maintain a diplomatic stance without escalating tensions.
- ◆ **Commitment to Peace and Stability:** The call for refraining from using force to seize territory and the designation of the use or threat of nuclear weapons as ‘inadmissible’ underscores the G-20’s commitment to global peace and stability.
- ◆ **Climate Action and Renewable Energy:** The G-20’s commitment to a phasedown of coal and a significant increase in renewable energy sources aligns with global efforts to combat climate change.

STRIKING DOWN ‘SECTION 6A’ OF DSPE ACT IS RETROSPECTIVE: SC

Context: The Supreme Court ruled that its 2014 judgment in **Subramanian Swamy vs Director CBI**, which struck down **Section 6A of the 1946 Delhi Special Police Establishment Act (DSPE Act)**, would have a retrospective effect.

Background:

- ◆ The clause in question- **Section 6A of the DPSE Act** prescribed that the CBI should obtain prior sanctions to investigate corruption cases against an officer of the rank of joint secretary and above.

- ◆ This provision was struck down as ‘unconstitutional’ in the 2014 judgment in the case **Subramanian Swamy v. Union of India**.
- ◆ The Court had held that there cannot be any distinction between public servants.



- ◆ The 2014 ruling had, however, not clarified what would happen to existing cases being probed by the central agency.
- ◆ A constitution bench was, therefore, constituted to examine whether the 2014 decision would affect existing corruption cases.

Key-highlights of the present ruling

Retrospective effect:

- The retrospective law is a law that has backdated effect or is effective since before the time it is passed. The retrospective law is also referred to as *ex post facto* law.

- ◆ The Constitution Bench has now answered this question in the affirmative and held that the 2014 judgment would have **retrospective effect**.
- ◆ However, in a 2014 decision, in the case of **Subramanian Swamy vs Director CBI**, the apex court struck down **Section 6A (1) on the ground that it was violative of Article 14 (right to equality) of the Constitution of India**.
- ◆ Once a law is declared unconstitutional, violative of **Part-III** of the Constitution, then it would be held to be **void ab initio, stillborn, unenforceable**, and honest in view of **Article 13(2)** of the Constitution and its interpretation by authoritative pronouncements.
- ◆ The Court clarified that Section 6A will be considered as **never having been in force**.

What does it mean?

- ◆ This means that the CBI **no longer needs to seek prior permission** from the government to investigate or prosecute cases filed before 2014, the date when the provision was declared unconstitutional by the Supreme Court.

- ◆ This verdict is likely to have a significant impact on corruption and other criminal cases initiated against government servants between 2003 and 2018 when the provision of **Section 17A of the Prevention of Corruption Act** came into force.



RAJASTHAN GOVERNOR'S ASSENT SOUGHT FOR SOCIAL SECURITY BILLS

Context: Recently, activists sought the Governor of Rajasthan to pass the **Rajasthan Minimum Guaranteed Income Bill 2023** and the **Rajasthan Platform Based Gig Workers (Registration and Welfare) Bill 2023**.

The Rajasthan Minimum Guaranteed Income Bill 2023:

- ◆ **Objective:** In order to provide individuals or households with a minimal additional guaranteed income in the form of a guaranteed wage/pension, the bill would establish entitlement-based social security.
- ◆ **Salient provisions:**
 - ▶ **Minimum guaranteed income:** Each adult citizen of the state has been guaranteed a minimum income for **125 days a year**.
 - This will be provided through two schemes,
 - In the urban areas through the Rajasthan government's flagship **Indira Gandhi Shabri Rozgar Guarantee Yojana**.
 - In the rural areas through the **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**.
 - ▶ **Guaranteed employment:**
 - The minimum wages should be paid weekly or in any case not later than a fortnight to ensure the right to employment.
 - The Program Officers (BDO in rural and an Executive Officer of the local body in urban areas) shall ensure that the work site is within a radius of 5 Km of where the job card is registered.
 - The applicant is entitled to an unemployment allowance if the program officer fails to offer work within 15 days of receiving the application.
 - ▶ **Guaranteed social security pension:** The government will provide eligible categories (aged, disabled, widows, and single women) with a **minimum pension of Rs 1,000**, which will be increased at the rate of **15% each year**.

The Rajasthan Platform-Based Gig Workers (Registration and Welfare) Bill 2023:

- ◆ **Objective:** This bill aims to address the **lack of protection and benefits for gig workers**, who were previously classified as "partners" rather than employees in companies like **Ola, Uber, Swiggy, Zomato, and Amazon**.
- ◆ Earlier, the **Code on Social Security, 2020** mandated social security funds for gig workers, including life, disability, health benefits, and more.

Key Features:

- ◆ **Registration of Gig Workers:**
 - ▶ The bill mandates the registration of all gig workers with the state government to bring them under the ambit of labor regulations.
 - ▶ The state government will maintain a comprehensive database of all gig workers operating in Rajasthan.
 - ▶ Each gig worker will be assigned a unique ID, which will facilitate tracking their employment history and entitlements.
- ◆ **Access to Social Security Schemes:**
 - ▶ Gig workers will be granted access to a **range of social security schemes**.
 - ▶ These schemes may include **health insurance, accident coverage, and other welfare measures to provide financial support during emergencies**.
- ◆ **Grievance Redressal Mechanism:**
 - ▶ The bill ensures that gig workers have the **right to be heard** and address any grievances they may have.
 - ▶ This provision seeks to protect the rights of gig workers and provide them with a platform to resolve work-related issues.
- ◆ **Establishment of Platform-Based Gig Workers Welfare Board:**
 - ▶ This board will be responsible for overseeing the welfare and rights of gig workers in the state.
 - ▶ **Welfare Board** — comprising State officials, five representatives each from gig workers and aggregators, and two others ("one from Civil Society and another who evince interest in any other field").
 - ▶ At least one-third of the **nominated members should be women**.
 - ▶ This representation aims to ensure that the interests of both parties are considered when making decisions related to welfare and regulation.

◆ **Platform-Based Gig Workers Fund and Welfare Fee:**

- ▶ The bill introduces a "Platform-Based Gig Workers Fund and Welfare Fee" to finance the social security measures for gig workers.
- ▶ The fund will be utilized to provide financial support and welfare benefits to gig workers during challenging times.

◆ **Fee Levied on Aggregators:**

- ▶ Aggregators will be required to pay a **fee for each transaction** involving a platform-based gig worker.
- ▶ The specific percentage of the fee will be determined by the state government to **contribute to the welfare fund**.

States like **Gujarat, Maharashtra, Odisha, and Jharkhand** have already begun the process of setting up the tech platform.

What is the need of such an initiative?

- ◆ Currently the data are fed on the platform manually, and available in **downloadable Excel format** for anyone to access and use, to visualise and analyse trends.
- ◆ VSK will shift from **manual mode to automatic mode** once the **Application Programming Interface (API)** integration process is complete.
- ◆ **Significance:** The idea of developing VSKs is allow mapping of the **school location layer** with the population layer to assess the **Gross Access Ratio**, which can help plan for new schools, or for industry clusters to understand skilling requirements of the area, and help plan **higher educational institutions based on demand and future scenarios**.

VIDYA SAMIKSHA KENDRAS

Context: Under the National Digital Education Architecture (NDEAR), the Ministry of Education is pushing States to open Vidya Samiksha Kendras (VSKs).

About the initiative:

- ◆ Vidya Samiksha Kendras or VSKs refer to a central system at the State level for tracking and monitoring data related to student enrolment, learning outcomes, and various government schemes and projects for facilitating education services.
- ◆ The NDEAR compliant **Vidya Samiksha Kendra (VSK)** is an **open-source platform** run on **C-Qube software** to collect data from all schemes run by the **Ministry of Education (MoE)**.
- ◆ Some of the key data portals that currently form a part of the Central level NDEAR VSK include **UDISE, DIKSHA, National Achievement Survey, NIPUN BHARAT, Performance Grading Index, PM-POSHAN mid-day meal programme, etc.**
- ◆ **Implementation:** '**EkStep Foundation**', a non-profit organisation is on board in **an advisory role** for implementing the VSK project.
- ◆ **Fund allocation:** The Centre has allocated funds ranging from **Rs.2 to Rs. 5 crore** to **each State** for adopting and establishing VSKs that include pre-configured open-source hardware and software as well as hiring human resources.

National Digital Education Architecture (NDEAR):

- ◆ National Digital Education Architecture (NDEAR) was launched in 2021.
- ◆ It is an architectural blueprint for the educational ecosystem in the country that defines a set of **principles, standards and specifications**, guidelines and policies to strengthen the digital infrastructure for education.
- ◆ It is under the **Ministry of Education** in collaboration with the **Ministry of Electronics and Information Technology**.
- ◆ Under this, the government will not be building technology solutions for the education sector but will act as an enabler, offering a framework wherein technology can be developed and built by anyone.
- ◆ NDEAR is not a **centrally-**



controlled framework and it is inherently federated to ensure the autonomy of all stakeholders including the states.

SC REFERS CHALLENGE TO SEDITION LAW TO CONSTITUTION BENCH

Context: As per the recent update, the Supreme Court (SC) has sent petitions against Section 124A (sedition law) to a Five-judge panel for review.

Background:

- ◆ In a historic move aimed at overhauling colonial-era criminal laws, the Central government had introduced three bills in the Lok Sabha on August 11, 2023.

Kedar Nath Singh versus State of Bihar (1962):

The Supreme Court upheld the **constitutionality of Section 124A** but with certain important clarifications:

- The Court ruled that sedition laws could only be invoked if there was incitement to violence or public disorder.
 - Mere criticism of the government or strong words against it did not amount to sedition unless there was a direct incitement to violence.
 - The Court emphasized that the right to free speech and expression was not absolute and must be balanced with the need to maintain public order and security.
 - It clarified that the aim of the sedition law was to prevent actions that could lead to public disorder or violence against the State.
- ◆ The Bills aims to replace the **Indian Penal Code (IPC), Criminal Procedure Code (CrPC) and the Indian Evidence Act** by the Bharatiya Nyaya Sanhita, the Bharatiya Nagrik Suraksha Sanhita and Bharatiya Sakshya Bill, respectively.
 - ◆ The **Bharatiya Nyaya Sanhita** has been proposed to repeal sedition law and to introduce a new provision with a wider definition of the offence.

Supreme Court's stand:

- ◆ The Supreme Court rejected the government's request to **delay and referred petitions** challenging the colonial-era sedition law (Section 124-A) to a five-judge Constitution Bench.
- ◆ The recent Bench led by CJI, mentioned that the five-judge Constitution Bench would consider in view of the fact that, **Kedar Nath Singh versus State of**

Bihar (1962) upheld the validity of **Section 124-A of the IPC.**

- ◆ The apex court observed that the **Kedar Nath Singh case** was based on a limited view of fundamental rights, mainly **Article 19**. Later, it evolved as **Articles 14, 19, and 21** were seen as working together.
- ◆ The court emphasized that **Section 124A still exists**, and any new law would apply only in the future, so the **challenge to its validity needs examination.**
- ◆ The court directed the matter to be placed before the Chief Justice for the formation of a bench with at least five judges.

What is Section 124 A?

- ◆ Section 124A says "a person commits the crime of sedition, if he/she brings or attempts to **bring in hatred or contempt**, or **excites or attempts** to excite disaffection towards, the government established by law in India."
- ◆ It can be by words, either **spoken or written, or by signs, or by visible representation, or otherwise.**
- ◆ It prescribes the **maximum punishment of life imprisonment.**

Historical prospect of Sedition law:

- ◆ The law on sedition was not there in the original IPC, which came into force in 1862.
- ◆ It was added to the **Code in 1870** and its ambit was expanded in 1898 with a view to crush the **freedom movement.**
- ◆ While upholding the validity of Section 124A of IPC, a five-judge Constitution Bench had in Kedar Nath Singh's case (1962) restricted the **scope of sedition law** by prescribing certain safeguards.
- ◆ Sedition was made a **cognizable offence in 1973.**

What are the issues raised against the Bill?

- ◆ **Criminalizing community service:** The new Bill includes **community service as a punishment**, which can be a fair option for minor offenses where a **fine isn't enough**, but jail time is too harsh.
 - ▶ However, the Bill doesn't **specify what qualifies as community service**, potentially leading to disputes over sentencing.
 - ▶ **Clear guidelines for community service** would be helpful to avoid confusion and ensure a fair justice system.

'Community services' in India:

- Courts in India have been imposing community service as **conditions for bail**. For example, **ordering traffic management and working at de-addiction centres.**

- However, there have also been stray cases where peculiar kinds of community service were ordered. For example, direction to **distribute copies of Quran, donation of money to gaushala or direction to serve at a temple.**

- ◆ **Against Organised crime:** The Bharatiya Nyaya Sanhita Bill includes a **section (Clause 109)** addressing organized crime, covering offenses like **kidnapping, robbery, cyber-crimes, and more.**
 - ▶ While these offenses are similar to existing laws, the new bill's definition is broader and unclear. For example, it mentions **land grabbing**, but this term remains undefined.
 - ▶ Phrases like "cybercrimes" and "economic offenses" lack clear definitions in the bill, leading to ambiguity.
 - ▶ The term "**cybercrimes having severe consequences**" is also vague.
- ◆ **For Petty organised crime:**
 - ▶ Clause 110 of the **Bharatiya Nyaya Sanhita Bill** addresses "**petty organized crime**" but raises concerns.
 - ▶ It uses the **term "crime"** instead of the standard "**offence**" without defining it.
 - ▶ The clause proposes **higher punishment for acts** causing "**general feelings of insecurity**" among citizens. This approach creates problems as **it links punishment** to citizens' perceptions rather than the nature of the act.
 - ▶ This approach lacks **clarity and consistency**, potentially leading to uneven application of punishment based on subjective factors, undermining the intended deterrence effect of the law.



'FRATERNITY' AS ENSHRINED IN THE CONSTITUTION

Context: Fraternity is one of the constitutional values that have received the maximum neglect both in the world of ideas and in the political field of action.

- ◆ Fraternity, often overlooked, is a vital aspect of **liberal political philosophy** alongside **liberty and equality.**

What does Fraternity means?

- ◆ Fraternity, in the context of constitutional provisions, refers to the **idea of brotherhood and solidarity among citizens within a nation.**
- ◆ It implies a sense of **unity, social harmony, and mutual respect** among individuals, transcending differences such as caste, creed, religion, or gender.

It's Origin and Significance:

- ◆ **Ancient Greek Philosophy:** The concept of fraternity has ancient roots, with early ideas found in the works of philosophers like **Plato and Aristotle.**
 - ▶ Plato emphasized the **sharing of knowledge and love in the pursuit of wisdom**, hinting at the notion of **sharing and cooperation** as **elements of fraternity.**
- ◆ **Medieval Christianity:** During the middle Ages, fraternity was often associated with religion, particularly within the **context** of Christian society in Europe.
 - ▶ It manifested as a sense of community and brotherhood among religious groups and organizations.
- ◆ **French Revolution:** The concept of fraternity gained political significance during the French Revolution in 1789.
 - ▶ It became one of the three pillars of the revolutionary slogan "**liberté, égalité, fraternité**," highlighting its importance in the **realm of politics and governance.**
- ◆ **Evolution in Political Thought:** Fraternity evolved from its origins in civic-political friendship in ancient Greece to religious **contexts** in medieval Europe, and finally to its revolutionary dimension in modern political thought.
- ◆ **Enduring Idea:** Despite its evolution, fraternity remains an enduring idea that emphasizes unity, cooperation, and solidarity among individuals or groups, particularly within the political and social spheres.

What are the recent threats to the 'idea of Fraternity' in India?

- ◆ **Social Inequalities:** True political fraternity cannot exist if it ignores social inequalities. If fraternity is based on hatred towards an imaginary enemy, it only maintains the existing social hierarchy, benefiting the privileged while oppressing the underprivileged.
- ◆ **Belligerent Nationalism:** The call for fraternity is often replaced by aggressive nationalism that targets religious minorities as enemies. This kind of rhetoric has been used to oppress religious minorities in India.
- ◆ **Fundamentalism:** Fundamentalism, which is rigid and extreme thinking, is incompatible with fraternity. Fanatics cannot exhibit true brotherhood or solidarity.
- ◆ **Caste and Fraternity:** In India, the coexistence of caste and political fraternity is challenging. One must give way for the other to thrive, and the future of Indian politics will determine which one prevails.

Constitutional Provisions in India:

- **As a part of Preamble:** The term "fraternity" is explicitly mentioned in the **Preamble of the Indian Constitution**.
 - ▶ The Preamble underscores the significance of fraternity in promoting **social cohesion, individual dignity, and national unity**.
 - ▶ It emphasizes that along with **justice, liberty, and equality, fraternity** is a fundamental value that the Indian state is committed to ensuring.
- **Article 15:** This article prohibits discrimination on grounds of religion, **race, caste, sex, or place of birth**. It promotes fraternity by ensuring that the state does not discriminate against any citizen.
- **Article 17:** Article 17 abolishes "**untouchability**" and forbids its practice in any form. It aims to eliminate a deeply rooted form of social discrimination and promote fraternity among all citizens.
- **Directive Principles of State Policy:** Several directive principles in **Part IV of the Constitution**, such as promoting educational and economic opportunities for marginalized groups, aim to reduce inequalities and promote fraternity.
- **Fundamental Duties:** The Constitution includes **Fundamental Duties (Article 51A)** that encourage citizens to promote harmony, the spirit of common brotherhood, and renounce practices derogatory to the dignity of individuals and communities.



SELF-REGULATORY ORGANISATION FOR FINTECHS

Context: Recently, RBI Governor Shaktikanta Das urged that fintech firms to create a **Self-Regulatory Organisation (SRO)** for transparent, fair, and consumer-centric practices.

About Fintech:

- ◆ Fintech" is a term that combines "**financial**" and "**technology**".
- ◆ It refers to **companies and technologies** that leverage digital innovations to provide financial services in a more efficient, accessible, and innovative manner.
- ◆ Fintech encompasses a wide range of services, including **digital payments, peer-to-peer lending, robo-advisors, blockchain technology, and more**.
- ◆ These technologies are made to go beyond traditional financial systems and **offer new solutions to consumers and businesses**.

WHAT IS FINTECH?

Fintech refers to the technology and innovation that aims to compete with financial services to create new and better services for consumers in industries such as banking, asset and wealth management, investing, insurance and mortgages.

FINTECH INNOVATIONS



P2P LENDING



BLOCKCHAIN



MOBILE PAYMENTS



ROBO ADVISORY



ONLINE BANKING

What is an SRO?

- ◆ An SRO is a **non-governmental organization** that **sets and enforces rules and standards** relating to the **conduct of entities** in the industry (members) with the aim of protecting the customer and **promoting ethics, equality, and professionalism**.
- ◆ SROs typically collaborate with **all stakeholders** in framing rules and regulations.
- ◆ **Functions:**
 - ▶ To serve as a **two-way communication channel** between its members and the RBI.
 - ▶ To work towards establishing **minimum benchmarks and standards** and help instill professional and healthy market behavior among its members.
 - ▶ To **impart training** to the **staff of its members**
 - ▶ To establish a **uniform grievance redressal and dispute management framework** across its members.

How can an entity become an SRO?

- ◆ Those entities who are interested in being recognized as SROs will have to apply to the RBI.
- ◆ Once the regulator finds an entity suitable, it will issue a **letter of recognition**.

RBI's Expectations from Fintech Players:

- ◆ **Industry Best Practices and Compliance:** Fintech firms are urged to develop and adopt industry best practices, aligning with local laws. This includes establishing robust privacy and data protection norms.
- ◆ **Avoiding Mis-Selling and Ensuring Ethical Business Practices:** Fintech entities should set standards to prevent mis-selling and uphold ethical conduct in their operations.

- ◆ **Transparency in Pricing:** It is expected that fintech companies maintain transparency in pricing, ensuring that customers have a clear understanding of the costs involved in their services.

How SRO can solve the purpose?

- ◆ SROs could play a pivotal role in the fintech industry by **promoting responsible practices and maintaining ethical standards.**
- ◆ There have been many instances where a few fintech players were involved in unethical practices such as charging exorbitant higher interest rates and **harassment of borrowers** for recovering loans.
- ◆ It will help to address issues like **market integrity, conduct, data privacy, cybersecurity, and risk management.**
- ◆ SROs can help build trust among **consumers, investors, and regulators.**

Why fintech industry is important?

- ◆ **Financial Inclusion:** Through digital platforms and mobile apps, fintech companies have made it easier for people to access banking, payments, lending, and investment services.
- ◆ **Innovation and Disruption:** Fintech companies are known for their innovative approaches to financial services. They leverage technology to create new products, services, and business models.
- ◆ **Efficiency and Cost Reduction:** Fintech companies often use automation, artificial intelligence, and blockchain technology to streamline operations.
- ◆ **Improved Customer Experience:** Fintech companies place a strong emphasis on user experience and design.
- ◆ **Innovative Payment Solutions:** They revolutionized the way we make payments. This includes the development of digital wallets, **peer-to-peer payment platforms, and cryptocurrency.**
- ◆ **Access to Capital for Small Businesses:** Fintech platforms, such as peer-to-peer lending and crowdfunding, have provided alternative sources of **funding for small businesses and startups.**
- ◆ **Data-Driven Insights and Personalization:** Fintech companies often leverage big data and advanced analytics to provide customers with personalized financial advice and insights.

RBI's role in fintech administration:

The Reserve Bank of India (RBI) plays a crucial role in the administration and regulation of the fintech sector in India.

- ◆ **Regulatory Oversight:** RBI is the central regulatory authority for the financial sector in India. It formulates policies and regulations that govern various aspects of fintech operations, including payment systems, digital banking, cryptocurrencies, and other innovative financial technologies.

- ◆ **Licensing and Authorization:** RBI is responsible for granting licenses and authorizations to fintech companies, especially those involved in critical financial activities like payment processing, lending, and other regulated services. This ensures that only qualified and compliant entities operate in the financial sector.

- ◆ **Setting Standards and Guidelines:** RBI establishes industry standards and guidelines to ensure the safety, security, and efficiency of fintech operations. This includes rules for data protection, cybersecurity, anti-money laundering (AML), and customer protection.

- ◆ **Monitoring and Supervision:** RBI monitors the activities of fintech firms to ensure compliance with regulatory requirements. This involves conducting audits, inspections, and assessments to verify adherence to prescribed norms.

- ◆ **Consumer Protection:** RBI takes measures to protect the interests of consumers in fintech transactions. This includes setting rules for fair practices, dispute resolution, and grievance redressal mechanisms.

- ◆ **Fostering Innovation:** While regulating the sector, RBI also encourages innovation in fintech. It provides a conducive environment for experimentation and adoption of new technologies that can benefit the financial industry and consumers.

- ◆ **Risk Management:** RBI assesses and addresses the potential risks associated with fintech activities. This involves identifying and mitigating risks related to cyber security, fraud, market stability, and systemic risks.



GRESHAM'S LAW

Context: In India's informal economy, **Gresham's Law is relevant because fake money and low-quality coins often mix with real currency, affecting the overall value of money in circulation.**

What is Gresham's law?

- ◆ Gresham's law refers to the dictum that **"bad money drives out good."**
- ◆ The law comes into play when the exchange rate between two moneys or currencies is fixed by the government at a certain ratio that is different from the **market exchange rate.**

- ◆ Such price fixing causes the **undervalued currency** — that is, the currency whose price is fixed at a level below the market rate — to go out of circulation.
- ◆ The overvalued currency, on the other hand, remains in circulation but it does not find enough buyers.

Gresham's law is named after English financier **Thomas Gresham** who advised the English monarchy on financial matters.

- ◆ It should be noted that the market exchange rate is essentially an equilibrium price at which the supply

- of a currency is equal to the demand for the currency.
- ◆ Also, the supply of a currency in the market rises as its price rises and falls as its price falls; while, on the other hand, the demand for a currency falls as its price rises and rises as its price falls.
- ◆ So, when the price of a currency is fixed by the government at a level below the market exchange rate, the currency's supply drops while demand for the currency rises.
- ◆ Thus a **price cap** can lead to a currency shortage with demand for the currency outpacing supply.

Devaluing Currency (Currency depreciation)	Currency Appreciation
<ul style="list-style-type: none"> • Currency devaluation involves taking measures to strategically lower the purchasing power of a nation's own currency. • A weak domestic currency makes a nation's exports more competitive in global markets and simultaneously makes imports more expensive. • Higher export volumes spur economic growth, while pricey imports also have a similar effect because consumers opt for local alternatives to imported products. 	<ul style="list-style-type: none"> • Currency appreciation refers to the increase in value of one currency relative to another in the forex markets. • Countries use currency appreciation as a strategic tool to boost their economic prospects. • Export costs rise: This eventually leads to a reduction in gross domestic product (GDP), which is definitely not a benefit.

The law, named after English financier Thomas Gresham, came into play most recently during the economic crisis in Sri Lanka last year, during which the Central Bank of Sri Lanka fixed the exchange rate between the Sri Lankan rupee and the U.S. dollar.

Example:

- ◆ In India, there is one-rupee note and one-rupee coin.
- ◆ Both are forms of legally good money. Yet, the public sometimes prefer one form of a particular denomination to another, e.g., they may prefer the paper note to the rupee note.
- ◆ If there is such a preference for one form of money rather than another, it is an example of Gresham's Law in operation.



GLOBAL APPROACH TO REGULATE CRYPTOCURRENCIES

Context: Crypto regulation was a key agenda of the G20 summit. While regulations and a framework are yet to be finalised, consensus emerged that a blanket ban was not feasible. This was based on the report formulated by the IMF and the Financial Stability Board endorsed by G20 nations.

Background:

- ◆ Recently, a paper prepared by the **International Monetary Fund (IMF) and the Financial Stability Board (FSB)**, at the request of the Indian G20 Presidency, has suggested that **an outright ban** on cryptocurrencies.
- ◆ The IMF-FSB Synthesis paper had made a strong case for regulating crypto assets but had noted that a blanket ban may not be an effective tool.
- ◆ They also tend to increase the **incentives for circumvention** due to the inherent borderless nature of crypto- assets, resulting in potentially heightened **financial integrity risks**, and can also create inefficiencies.

The consensus at New Delhi:

- ◆ Under the Finance Track of India's G-20 presidency, a co-ordinated global approach was discussed for **regulating cryptocurrencies** and strengthening **multilateral development banks' (MDBs)** lending capacity.
- ◆ The New Delhi Declaration adopted by the G-20 leaders noted that they "continue to closely monitor the risks of the fast-paced developments in the crypto-asset ecosystem".
- ◆ It emphasized to endorse the **Financial Stability Board's (FSB's)** recommendations for the regulation, supervision and oversight of crypto-assets activities

and markets and of **global stablecoin arrangements**.

- ◆ This will help in use of **digital public infrastructure** like the **India Stack** to expand financial inclusion around the world.
- ◆ However, it does **not outright impose** any ban on crypto currencies.

Need for regulation:

- ◆ To address risks to financial integrity and mitigate criminal and terrorist misuse of the crypto-assets sector, jurisdictions should implement the Financial Action Task Force (FATF) **anti-money laundering and counter-terrorist financing (AML/CFT)** standards that apply to virtual assets (VAs) and **virtual asset service providers (VASPs)**.

About Cryptocurrencies:

- ◆ Cryptocurrencies are **digital or virtual currencies**

that use cryptography for security.

- ◆ They exist solely in electronic form and have no physical counterpart like **paper money or coins**.
- ◆ Most cryptocurrencies operate on decentralized networks, typically **based on blockchain technology**.
 - ▶ This means they are not controlled by a **single central authority**, such as a government or central bank.
 - ▶ Instead, they rely on a distributed ledger maintained by a **network of nodes (computers)**.

Regulation of cryptocurrency

- ◆ Unlike the U.S. Dollar or the Euro, there is **no central authority** that manages and maintains the value of a cryptocurrency.
- ◆ Instead, these tasks are broadly distributed among a **cryptocurrency's users via the internet**.

Positives	Negatives
<ul style="list-style-type: none"> • Bypassing fees and having privacy • Good investment opportunity • Less chance of hyperinflation 	<ul style="list-style-type: none"> • Extreme volatile • Uncertainty • Security issue • Taxable profits • Less mobility of money



RISING HEAT INDEX IN IRAN

Context: As per a recent report, Iran's coastal region has recorded a scorching heat index of 70 degrees Celsius (°C) in the coastal part of the country, a metric at which survival of life is not impossible. Also, the region recorded a heat index of 66.7 °C.

What is a Heat Index?

- ◆ Heat index, also known as apparent temperature, is a **measure of how the temperature feels to humans**.
- ◆ Relative humidity is an important factor that determines **heat index, along with air temperature**.

In 2024, India is scheduled to launch its **own heat index** to quantify the impact of heat on its population and generate impact-based heatwave alerts for specific locations.

How Heat index is measured?

- ◆ **Dr. Robert Steadman's Formula:** In 1979, Dr. Robert

Steadman, a professor at Colorado State University, developed a complex formula to calculate heat index.

- ▶ This formula considers factors like **temperature, humidity, wind speed, and barometric pressure to determine the apparent temperature, or what humans perceive as the temperature**.
- ◆ **Considerations for a "Typical Adult":** Dr. Steadman's study was based on a "**typical adult human of either sex, with a height of 1.7 metres and a weight of 67 kg.**"
 - ▶ This standardization allows for a consistent calculation of heat index applicable to a broad range of individuals.
- ◆ **Inclusion of Dew Point:** Dew point is a critical factor in heat index calculations.
 - ▶ It represents the temperature at which air can no longer hold all its moisture, causing condensation.
 - ▶ Dr. Steadman used a specific dew point value of **14°C in his calculations**.
 - ▶ This factor is crucial in assessing the sultriness or discomfort associated with a particular temperature-humidity combination.
- ◆ **Alternative Indices:** While Dr. Steadman's formula is widely recognized, some countries, like Canada, have developed their own indices.

- ▶ Canada uses Humidex, which considers temperature and dew point, but has its own specific formula for calculation.
- ▶ This emphasizes the importance of tailoring heat index calculations to **local climate conditions**.

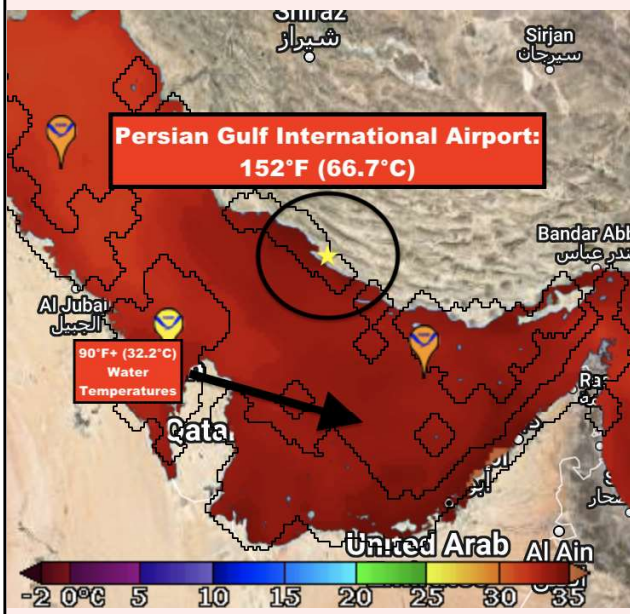
Why a specific heat index is important?

- ◆ **Moisture Capacity and Apparent Temperature:** Hot air has a greater capacity to hold moisture than cold air. When the temperature rises, the air's ability to hold moisture also increases.
 - ▶ This affects the apparent temperature or heat index, making humid air feel even hotter to humans.
 - ▶ This is why the heat index is a more useful metric than just the temperature alone.
- ◆ **Effects of High Humidity on the Body:** High humidity during heatwaves can lead to heat stress.
 - ▶ In these conditions, the body struggles to dissipate excess heat.

- ◆ **Impact of Humidity:** Conversely, in low humidity conditions, sweat can evaporate more efficiently, making the apparent temperature feel closer to the actual air temperature.
- ◆ **Dangerous Heat Index Values:** A **heat index value of 67°C** or above is extremely dangerous for both humans and animals with direct and prolonged exposure. At this level, heat-related illnesses become a serious risk.
- ◆ **Categorization of Heat Levels**
 - Green:** Experimental heat Index less than 35 deg C
 - Yellow:** Experimental heat Index in the range 36-45 deg C
 - Orange:** Experimental heat Index in the range 46-55 deg C
 - Red:** Experimental heat Index greater than 55 deg C
- ◆ **Public Health:** By understanding the Heat Index, individuals and communities can take proactive steps to protect public health during heatwaves.

About the Location:

- Persian Gulf is an arm of the Arabian Sea; between south-western **Iran and the Arabian Peninsula**.
- **Bordering Countries:** Iraq, Kuwait, Saudi Arabia, Bahrain, Qatar, United Arab Emirates, Oman (Musandam exclave) and Iran.
- Connected to the **Gulf of Oman** in the east by the Strait of Hormuz.
- The Strait of Hormuz is situated between Qeshm Island and the Iranian coast in the north and the Musandam Peninsula of the Arabian Peninsula in the south.



GLOBAL BIOFUELS ALLIANCE (GBA)

Context: The Global Biofuels Alliance (GBA) has been announced by India on the sidelines of the G20 Summit.

About Global Biofuel Alliance (GBA):

- ◆ GBA is an **India-led Initiative** to develop an alliance of Governments, International organizations and Industry to facilitate adoption of biofuels.
- ◆ **Objective:** Bringing together the **biggest consumers and producers of biofuels** to drive biofuels development and deployment, the initiative aims to position biofuels as a key to energy transition and contribute to jobs and economic growth.
- ◆ **Joining Members:** 19 countries and 12 international organisations have already agreed to join.
 - ▶ **G20 countries (07) supporting GBA:** Argentina, Brazil, Canada, India, Italy, South Africa, USA
 - ▶ **G20 Invitee Countries (04) supporting GBA:** Bangladesh, Singapore, Mauritius, UAE
 - ▶ **Non G20 (08) supporting GBA:** Iceland, Kenya, Guyana, Paraguay, Seychelles, Sri Lanka, and Uganda have agreed to be initiating members of GBA, and Finland.
 - ▶ **International organizations:** World Bank, Asian Development Bank, World Economic Forum, World LPG Organization, UN Energy for All, UNIDO, Biofutures Platform, International Civil Aviation Organization, International Energy

Agency, International Energy Forum, International Renewable Energy Agency, World Biogas Association.

◆ **Significance:**

- ▶ GBA Members constitute **major producers and consumers of biofuels**.
- ▶ USA (52%), Brazil (30%) and India (3%), contribute about 85% share in production and about 81% in **consumption of ethanol**.

◆ **Functions:**

- ▶ GBA will support worldwide **development and deployment of sustainable biofuels** by offering capacity-building exercises **across the value chain**, technical support for national programs and promoting policy lessons-sharing.
- ▶ It will facilitate mobilizing a **virtual marketplace to assist industries, countries, ecosystem players** and key stakeholders in **mapping demand and**

supply, as well as connecting technology providers to end users.









- ▶ It will also facilitate **development, adoption and implementation** of internationally recognized **standards, codes, sustainability principles and regulations** to incentivize biofuels adoption and trade.

India's Approach:

- ◆ The alliance will focus on collaboration and will provide additional opportunities to Indian industries in the form of exporting technology and exporting equipment.
- ◆ It will help accelerate India's existing biofuels programs such as **PM-JIVANYojna, SATAT, and GOBARDhan scheme**, thereby contributing to increased farmers' income, creating jobs and overall development of the Indian ecosystem.

National Policy on Biofuels 2018

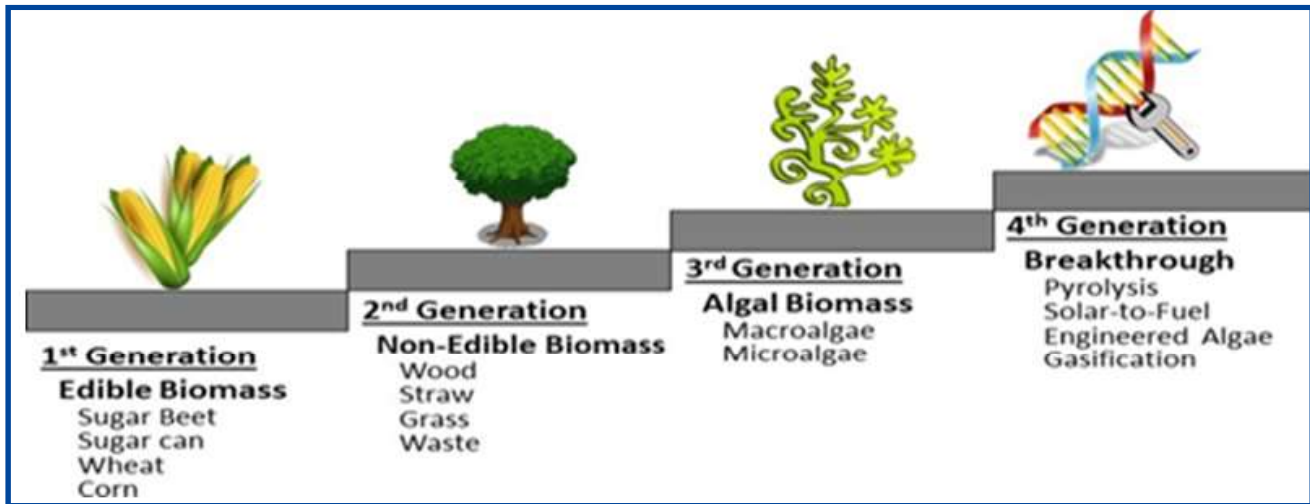
Salient features

 <p>An indicative target of 20% blending of ethanol in petrol and 5% blending of biodiesel in diesel is proposed by 2030.</p>	 <p>With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.</p>	 <p>Categorization of Biofuels into Basic Biofuels - First generation(1G) Bioethanol & biodiesel and "Advanced Biofuels"- Second Generation(2G) ethanol, drop-in fuels, algae based Third Generation(3G) Biofuels.</p>	 <p>Increase scope of raw material for ethanol procurement by encouraging Intermediate (B-Molasses), Sugarcane Juice, other Sugar containing materials and damaged as well as surplus food grains.</p>
 <p>Develop National Biomass repository by conducting appraisal of biomass across the Country.</p>	 <p>Bio diesel production to be encouraged from non edible oilseeds, used cooking oil, short gestation crops and development of supply chain mechanisms.</p>	 <p>Thrust on research, development and demonstration in the field of Biofuel feedstock production, advanced conversion technologies from identified feedstock.</p>	 <p>Setting up of National Biofuel coordination committee (NBCC) under Ministry of Petroleum & Natural Gas and Working Group on Biofuels.</p>

What are Biofuels?

- ◆ Biofuels are liquid fuels produced from renewable biological sources, **including plants and algae**.

◆ Biofuels offer a solution to one of the challenges of **solar, wind, and other alternative energy sources**.



Advantages of Biofuels	Disadvantages of Biofuels
<ul style="list-style-type: none"> • Availability: Since biofuels only require biomass for their production, which is ubiquitous, biofuels are easy to produce. • Reduction in waste: They can be produced using waste materials such as municipal sewage waste. • Reduce dependency on crude oil and non-renewable sources of fuels. • Economic development: The production of biofuels can be a labour-intensive process thus resulting in the creation of jobs. 	<ul style="list-style-type: none"> • Low Efficiency: The efficiency of biofuels is much lesser compared to fossil fuels. • Loss of biodiversity: GM crops used for the production of fourth-generation biofuels could lead to biodiversity loss. • Less availability of space: production of biofuels requires land, and in the case of second-generation biofuels, the crops used are mostly non-food crops, thus the production of biofuels requires a lot of space. • Food shortage: The first generation biofuels make use of food sources and there is an imminent threat of facing food shortage. • Water usage: Massive quantities of water are required.



GENETIC ENGINEERING GIVES MOSQUITO CONTROL AN UPGRADE

Context The surge in mosquito-borne diseases due to urbanization and climate change calls for innovative mosquito control approaches. Sequencing and genetic manipulation of mosquito genomes offer promising tools for effective disease prevention.

What is gene drive?

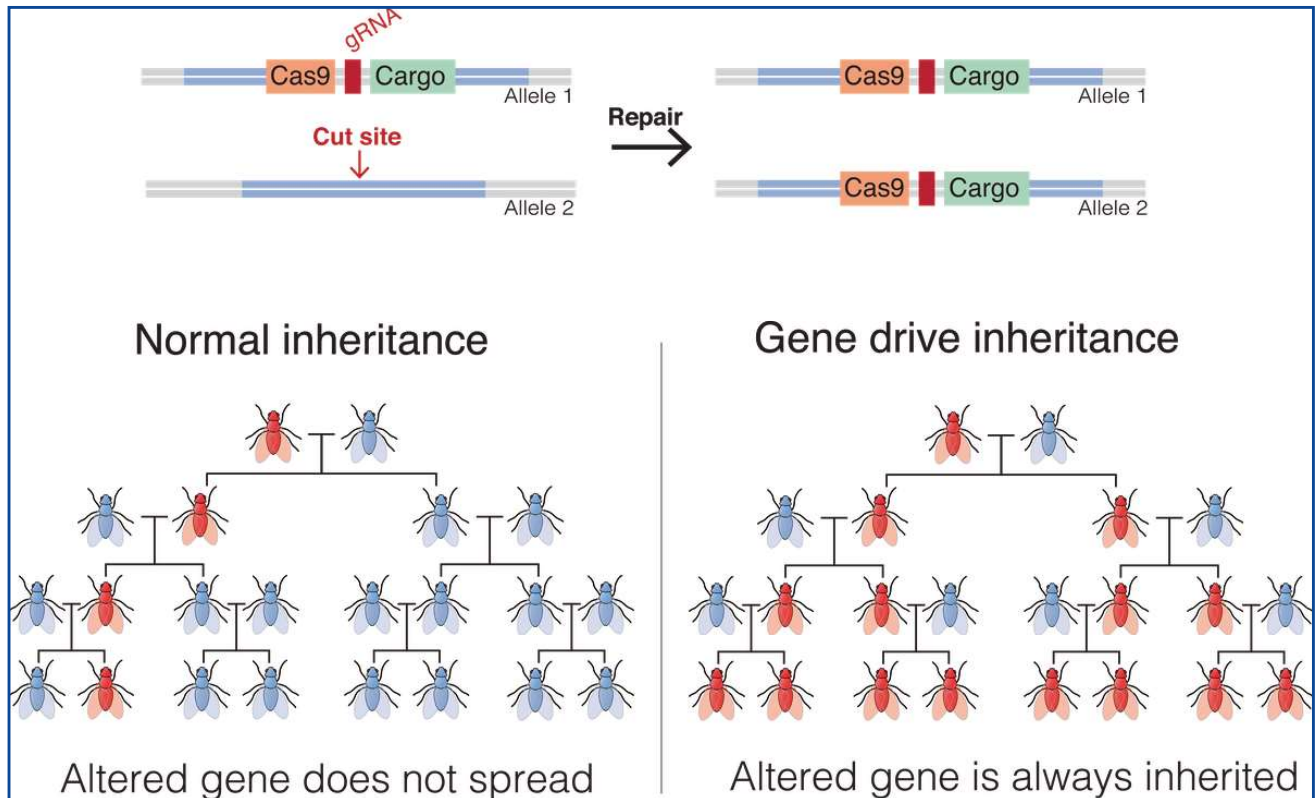
◆ Scientists worldwide have developed various **genetic modification approaches**. A major one in this endeavour is gene-drive technology, whose end result is for mosquitoes to selectively inherit some genes, rather than the inheritance to follow the rules of **Mendelian genetics**.

- ◆ A gene drive is a type of **genetic engineering technique** that modifies genes so that they don't follow the typical rules of heredity.
- ◆ Gene drives dramatically increase the likelihood that a particular suite of genes will be passed onto the next generation, allowing the genes to rapidly spread through a population and override natural selection.
- ◆ This technology was conceived by **Austin Burt**, professor at Imperial College London, in a 2003 paper published in **Royal Society Proceedings**.

How does it work?

- ◆ Gene drives work by using **directed repair gene editing**.
- ◆ This enables the insertion of a new gene, called the driven gene, at a particular cut site through the use of a donor template.





Benefits	Concerns/Issues
<ul style="list-style-type: none"> It would lead to prevention of diseases. It can help to address the challenges of invasive species. 	<ul style="list-style-type: none"> Drastic reduction in the mosquito population could alter food chains and ecosystems that involve mosquitoes. Unintended consequences can occur such as unforeseen ecological disruptions Potential for engineered genes to spread beyond target mosquito populations.

How GM mosquitoes are produced and used to control *Ae. aegypti* mosquitoes?

- GM mosquitoes are mass-produced in a laboratory to carry two types of genes
 - A **self-limiting gene** that prevents female mosquito offspring from surviving to adulthood.
 - A **fluorescent marker gene** that glows under a special red light. This allows researchers to identify GM mosquitoes in the wild.
- GM mosquitoes produced in the laboratory lay eggs. These eggs carry the self-limiting and fluorescent marker genes.
- GM mosquito eggs that carry the self-limiting gene are released into an area. Once they have hatched and develop through to the adult stage, they are available to mate with wild females. The genes are passed on to offspring

- The female offspring die before they become adults. The expected result is that the number of *Ae. aegypti* mosquitoes in the area decreases.

Effectiveness of GM mosquitoes in reducing numbers of mosquitoes

- GM mosquitoes have been successfully used in parts of Brazil, the Cayman Islands, Panama, and India to control *Ae. aegypti* mosquitoes. Since 2019, over 1 billion mosquitoes have been released.
- When GM mosquitoes stop being released into an area, the *Ae. aegypti* mosquito population will slowly return to "normal levels."
- GM mosquitoes will only work to reduce numbers of target mosquito species (e.g., *Ae. aegypti*), not other types of mosquitoes. Most communities have more than one type of mosquito.



IISC DEVELOPS NEW NANOPARTICLE FOR CANCER TREATMENT

Context Scientists at the Indian Institute of Science (IISc) have made a significant breakthrough in cancer research by developing a new method to detect and kill cancer cells.

About the method

- ◆ The team has created **hybrid nanoparticles**.
- ◆ The hybrid nanoparticles are composed of **gold and copper sulphide**, which can destroy cancer cells through **heat generation** and enable their detection using **sound waves**.
- ◆ The hybrid nanoparticles exhibit **photo thermal, oxidative stress, and photoacoustic properties**.
- ◆ **Therapeutic potential:**
 - ▶ When exposed to light, these particles absorb it and generate heat, effectively killing cancer cells.
 - ▶ Additionally, they produce toxic singlet oxygen atoms that further contribute to the destruction of cancer cells.
- ◆ **Diagnostic capabilities:**
 - ▶ They can absorb light and generate ultrasound waves, enabling the detection of cancer cells with high contrast.
- ◆ This property could enhance the accuracy of cancer

diagnosis as sound waves scatter less than light when passing through tissues, providing clearer images and more precise measurements of oxygen saturation in tumors.

- ◆ This innovative approach was detailed in a study published in ACS Applied Nano Materials.

About Cancer:

- Cancer is a disease in which **abnormal cells divide uncontrollably** and destroy body tissue.
- It can start almost anywhere in the human body, which is made up of trillions of cells. Normally, human cells grow and divide to form new cells as the body needs them. When cells grow old or become damaged, they die and new cells take their place.
- When cancer develops, this orderly process breaks down. As cells become more and more abnormal, old or damaged cells survive when they should die and new cells form when they are not needed. These extra cells can divide without stopping and forms tumors, which can spread through the blood or the lymph system and form **new tumors far from the original tumor**.
- **Causes of Cancer:**
 - ▶ Biological or internal factors, such as age, gender, inherited genetic defects and skin type.
 - ▶ Environmental exposure, for instance to radon and UV radiation, and fine particulate matter.
 - ▶ Occupational risk factors, like carcinogens such as chemicals, radioactive materials and asbestos.
 - ▶ Lifestyle-related factors.



Section B [SPECIALS]

Topic

☞ G20 Summit 2023



G20 SUMMIT 2023

Context: The 18th G20 Summit of 2023 recently concluded in New Delhi, India, marking the first-ever G20 summit hosted by the country.

So, Let us take a look at **highlights of the summit.**

About G20:

- The G20 originated in 1999 in response to the **Asian financial crisis of 1997-98**, initially serving as an informal platform for finance ministers and central bank governors from both developed and developing economies.
- In 2008, following the global financial crisis, the G20 expanded to include the **heads of state of member countries**.
- The G20 Presidency rotates annually under a **troika system**, involving the current, previous, and next host countries.
- **In 2022**, India took over the G20 Presidency from **Indonesia**, the preceding member of the troika.
- The presidency has now been passed to **Brazil, the next troika country**.

About the summit 2023:

- ◆ The summit's theme, "**Vasudhaiva Kutumbakam**" or "**One Earth, One Family, One Future**" is rooted in ancient Sanskrit texts and the goal of sustainable development.
- ◆ The **G20 Summit 2023** has concluded under India's presidency which has ignited many upcoming plans for India, who is now about to become the **leader of the Global South**.
- ◆ India was successfully able to achieve consensus around the **New Delhi Declaration** early on in the G20 Summit, which saw a dilution in the position taken by **the U.S. and EU on Russia**, besides focus on UN Sustainable Development Goals, climate action and green development initiatives, multilateral financing, digital public infrastructure, artificial intelligence (AI), and international taxation, among others.
- ◆ India also invited **Nigeria, Egypt, and Mauritius** as part of the 'Guest Countries' at the G20 summit.

WHAT WERE THE KEY OUTCOMES OF THE SUMMIT?

1. Social Issues and Women:

- ◆ Gender equality and environmental goals are mutually reinforcing and create a virtuous circle that will help

accelerate the achievement of the SDGs (Organization for Economic Co-operation and Development, 2021).

- ◆ India calibrated efforts toward **education with a focus on STEM** and one of the critical contributions of its presidency included '**TechEquity**', a Digital Inclusion Platform through which girls and women can skill, upskill and reskill themselves in digital literacy, financial literacy and other technical subjects.
- ◆ With contributions from across G20 Member States, courses in over **120 Indian and international languages** will be available on the platform.
- ◆ This platform will address the **gender digital divide** with an expected outreach of 1 million girls and women.

2. As a Voice of Global South- Signed New Delhi Declaration**Key Highlights of New Delhi Declaration:**

- ◆ **Included African Union as a member:** The Group of 20 (G-20) annual summit welcomed the **African Union** as a member, marking an important development in global economic cooperation.
- ◆ The summit did not explicitly condemn Russia for its war in Ukraine but called on **all states to refrain** from using force to seize territory.
- ◆ The G-20 emphasized the importance of **abiding by the principles of the United Nations Charter** and declared the use or threat of nuclear weapons as 'inadmissible.'
- ◆ The declaration urged Russia and Ukraine to ensure the immediate and unhindered delivery of **essential goods, including grains and fertilizers**, to meet the demands of developing and least developed countries, particularly in Africa.
- ◆ The G-20 called for a halt to military destruction and attacks on **food and energy infrastructure** and expressed concerns about high volatility in food and energy markets.
- ◆ Member countries committed to a "phasedown" of coal usage in line with their national circumstances. They also pledged to **triple renewable energy sources by 2030**.
- ◆ Developing countries require \$5.8 to \$5.9 trillion in the pre-2030 period to meet their climate goals. The world needs an additional \$4 trillion annually by 2030 to achieve the **net-zero carbon emission goals by 2050**.

- ◆ The New Delhi Declaration called for reforms in international financial institutions, addressing debt vulnerabilities in low and middle-income countries, and initiating the exchange of tax-relevant information on crypto assets by 2027.
 - ▶ It stressed the importance of well-calibrated **monetary, fiscal, financial, and structural policies** to promote growth, reduce inequalities, and maintain economic stability.

3. Regulating Economies

● Global approach to regulate cryptocurrencies

The global push for a **clear policy on crypto assets** has gained momentum under the Indian presidency, and a global consensus is emerging on the same.

The consensus at New Delhi:

- ◆ Under the Finance Track of India's G-20 presidency, a co-ordinated global approach was discussed for **regulating cryptocurrencies** and strengthening **multilateral development banks' (MDBs)** lending capacity.
- ◆ The New Delhi Declaration adopted by the G-20 leaders noted that they "continue to closely monitor the risks of the fast-paced developments in the crypto-asset ecosystem".
- ◆ It emphasized to endorse the **Financial Stability Board's (FSB's)** recommendations for the regulation, supervision and oversight of crypto-assets activities and markets and of **global stablecoin arrangements**.
- ◆ This will help in use of **digital public infrastructure** like the **India Stack** to expand financial inclusion around the world.
- ◆ However, it does **not outright impose** any ban on crypto currencies.

4. Growing Trade and Commerce

India-Middle East-Europe Economic Corridor (IMEC)

- ◆ In a bid to stimulate economic development through enhanced connectivity and economic integration, India, along with **other members of the G20**, has entered into a historic memorandum of understanding (MoU) to develop an **India-Middle East-Europe economic corridor**.



- ◆ The project is a part of the **Partnership for Global Infrastructure Investment (PGII)** — a West-led initiative for **funding infrastructure projects** across the world.
- ◆ **Objective:** The corridor aims to provide a reliable and cost-effective **ship-to-rail transit network** between **Asia, Middle East and Europe**.
- ◆ **Proposals:** The corridor will comprise of two separate corridors, **Eastern and Northern**.
- ◆ **Member Nations:** Apart from India, the other participants will include **Saudi Arabia, UAE, France, Germany, Italy, USA and the European Union**.

5. Adopting Climate Resilient methods

● Global Biofuel Alliance (GBA)

- ◆ GBA is an **India-led Initiative** to develop an alliance of Governments, International organizations and Industry to facilitate adoption of biofuels.
- ◆ **Objective:** Bringing together the **biggest consumers and producers of biofuels** to drive biofuels development and deployment, the initiative aims to position biofuels as a key to energy transition and contribute to jobs and economic growth.
- ◆ **Joining Members:** 19 countries and 12 international organisations have already agreed to join.
 - ▶ **G20 countries (07) supporting GBA:** Argentina, Brazil, Canada, India, Italy, South Africa, USA
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 - ▶ **International organizations:** World Bank, Asian Development Bank, World

Economic Forum, World LPG Organization, UN Energy for All, UNIDO, Biofutures Platform, International Civil Aviation Organization, International Energy Agency, International Energy Forum, International Renewable Energy Agency, World Biogas Association.

- ▶ The G20 is a crucial forum for international economic cooperation, and leaders use private meetings to make significant deals.
- ▶ Without Xi's presence, discussions on key economic issues may be affected, especially if a Chinese economic crisis were to occur.

What are the Geo-political questionnaires surrounded G20 Summit?

- ◆ **Non-Participation of Russian President:** Russian President Vladimir Putin's decision to skip major global gatherings is not uncommon for world leaders. However, his international travel is closely monitored due to the **International Criminal Court (ICC)** issuing a warrant for his arrest related to the war.
 - ▶ **India's Stance:** India, while not a party to the ICC, maintains diplomatic relations with Russia and is unlikely to arrest Putin despite the ICC warrant.
 - ▶ India seeks to preserve its positive ties with Russia, even amid international concerns about the conflict.
 - ▶ **Putin's Travel Scrutiny:** The ICC warrant adds an **extra layer of scrutiny** to Putin's international travel, but it is important to note that **diplomatic and political** considerations often take precedence in such situations.
- ◆ **Check-mate to China:**
 - ▶ Chinese President Xi Jinping's decision to skip the annual G20 summit has raised questions and speculation.
 - ▶ This is the first time he has not attended, and his absence has led to uncertainty about the reasons behind it.
 - ▶ There are several potential reasons for Xi's absence. It could be related to the ongoing border tensions with **India and the United States' efforts to strengthen ties with India** as a counterbalance to China.
 - ▶ Additionally, Xi may be concerned about domestic issues, such as an economic crisis and growing discontent within China.
 - ▶ **Impacts:** Xi's absence from the **G20 summit** could have implications for the global economy.

India's briefing for G20 Summit:

- ◆ **Prime Minister Narendra Modi's diplomatic coup:** At the Summit, India was able to leverage its economic significance to garner support from all **G20 member nations** for a Leaders' Declaration recognizing the conflict in Ukraine without specifying any aggressor.
 - ▶ Modi, who chaired the Summit, also advocated for reforming global institutions like the **United Nations Security Council (UNSC)** to align with the changing world dynamics, which received backing from the United States.
- ◆ India has successfully positioned itself as a champion for **developing and underdeveloped nations** and seeks to align this with its ambitions for a permanent seat on the UNSC.
- ◆ New Delhi is actively seeking support from the **African continent, which holds 55 crucial votes**, in pursuit of this goal.

Bilateral meetings on the sidelines

- ◆ During the 2023 New Delhi G20 Summit, India engaged in a series of bilateral meetings with world leaders.
- ◆ PM also addressed issues of **mutual interest with various leaders**.
- ◆ In one notable meeting, Modi raised India's deep concerns regarding extremist elements in Canada supporting secessionism, inciting violence against Indian diplomats, and threatening the Indian community there.
- ◆ President Biden highlighted the **partnership between India and the U.S.**, rooted in Mahatma Gandhi's principle of trusteeship, shared between the two nations.



Section C [PRELIMS]

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- ❧ Odisha's Konark Wheel
- ❧ Plan to revive maritime heritage
- ❧ Shivaji's historic Wagh Nakh
- ❧ Ayushman Bhav Campaign
- ❧ Disability certificate' for Sickle cell patients
- ❧ RBI decides to discontinue I-CRR
- ❧ Pearl millet cultivation zones in India
- ❧ Heatwaves leading to ozone pollution
- ❧ Global Stocktake Report
- ❧ Planetary boundaries
- ❧ India's deep-sea submersible Matsya 6000
- ❧ Nipah Virus outbreak in Kerala

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ODISHA'S KONARK WHEEL

Context: At the G20 Summit venue in Delhi, the historic Konark Wheel from Odisha's Sun Temple emerged as a focal point of attention. Prime Minister has selected a wall adorned with a depiction of this ancient architecture as the backdrop for his warm welcome to world leaders.

About Konark Wheel:

- ◆ The Konark Wheel was built during the **13th century** under the reign of **King Narasimhadeva-I** of the **Ganga dynasty**.
- ◆ The Wheel is an integral part of the **Sun Temple**, dedicated to the sun god '**Surya**'.
 - ▶ The temple was designed as a huge chariot drawn by 7 mighty spirited horses on 12 pairs (total 24 wheels) of gorgeously decorated wheels at its base.
 - ▶ The wheel size is 9 feet 9 inches in diameter, each with 8 wider spokes and 8 thinner spokes.



Konark wheels are used as **Sun dials** in ancient times to know the **time of the day**.

- ▶ Out of these 24 wheels, 6 are on either side of the main temple, 4 are on each side of the Mukhasala, and 2 are on each side of the steps at the eastern front.

Cultural significance of the Wheel

- ◆ Its rotating motion symbolises time, 'Kaalchakra', as well as progress and continuous change.
- ◆ They portray the **cycle of creation, preservation and achievement of realisation**.
- ◆ These 12 pairs of wheels may also possibly represent the **12 zodiac signs**.
- ◆ Some also believe that the Wheel of Konark is the same as the **Dharmachakra of the Buddhists** – "**The Wheel of Karma, The Wheel of the Law.**"

The Sun Temple (UNESCO World Heritage Site):

- ◆ Built in the **13th Century** by **Ganga king Narasimhadeva 1 (AD 1238-1264)**, the Sun Temple is located on the eastern shores of the Indian subcontinent.

- ◆ **Architecture:** Kalinga architecture
- ◆ **Design:** The Konark temple is designed in the form of the chariot of the Sun god.
 - ▶ The temple stands on a base of a total of 24 intricately carved wheels, 12 on each side. Four of the wheels can still be used as sundials to tell the time.

Each wheel has **eight spokes**. In the Indian time system, the day is divided into **eight pahars** comprising three hours each. The wheels served as a sun dial. One can tell the time accurate to a minute by observing the shadow of the axel falling on the rest of the wheel.

Components of the Temple:

- ▶ **Main Entrance:** The main entrance of the Sun Temple, the **Gajasimha** - **gaja** meaning elephant and **simha** referring to lions - derives its name from two massive stone lions crushing elephants.
- ▶ **The vimana** (principal sanctuary) was surmounted by a high tower with a **shikhara (crowning cap)**, which was razed in the **19th century**.
- ▶ To the east, the **jahmogana (audience hall)** dominates the ruins with its pyramidal mass.
- ▶ Farther to the east, **the natmandir (dance hall)**, today unroofed, rises on a high platform.
- ◆ The Sun Temple is directly associated with the idea and belief of the personification of **the Sun God**, which is adumbrated in the **Vedas and classical texts**.

PLAN TO REVIVE MARITIME HERITAGE

Context: A major initiative has been taken to revive an ancient maritime heritage of India, the stitched shipbuilding method.

About the initiative:

- ◆ The project, an initiative of the Central government, along with the **Navy, the Culture Ministry, and Goa-based shipbuilding company Hodi Innovations**.
- ◆ Under the project, there will be a **21-metre "stitched ship"** which will be made using an **ancient technique** of constructing a ship by stitching the planks of wood using ropes, cords, coconut fibres, natural resins and oils.
- ◆ Once the ship is ready, the voyage with a seam of 13 Indian Navy crew from Odisha will be sent to Bali, Indonesia in November 2025.
- ◆ This voyage will also be a part of the initiative to revive and honour India's traditional maritime trade routes.

- ◆ The project is set to cost Rs 9 crore and is expected to take around 22 months to complete.
- ◆ The ship has been planned to reach its destination during the **Bali Jatra festival** on **Kartik Purnima** to the island.

- **Bali Yatra**, a festival that commemorates the **rich maritime history of Odisha** is celebrated throughout the state.
- In the historic **city of Cuttack**, a week-long event is organised starting from the day of Kartika Purnima (full moon day in the month of Kartik i.e October-November).

Historical Linkage:

- ◆ The Kalinga Empire (present-day Odisha) is known for its glorious maritime history.
- ◆ Due to the **geographical location of Kalinga**, this area saw the growth of ports as early as the **4th and the 5th century BC**.
- ◆ The Kalingas constructed large boats called the **'Boitas'** and with the help of these, they traded with the Indonesian islands.
- ◆ As a result of these influences, the Balinese also celebrate Hindu Festivals such as **Shivaratri, Durga Pooja and Saraswati Pooja**.

- Some of the famous ports, **Tamralipti, Manikpatna, Chelitalo, Palur, Pithunda** allowed India to connect with other countries via the sea.
- Indian women perform **'Boita Bandana'**; they make boats of **paper or banana leaf (sholapith)** with lighted lamps inside and float them down the Mahanadi as a part of the celebrations.

Stitched Shipbuilding Method (Tankai method):

- ◆ It is a **2000-year-old technique** of shipbuilding, where ships are constructed by stitching wooden planks together rather than using nails, offering flexibility and durability, making them less susceptible to damage from shoals and sandbars.



- ◆ Although the **arrival of European ships** led to a shift in shipbuilding techniques, the art of stitching ships has survived in a **few coastal regions of India**, primarily for **small local fishing boats**.

- ◆ **Benefits:**

- ▶ These ships are **more durable** as nails are not used.
- ▶ These ships **caused less damage** due to shoals and sandbars.



SHIVAJI'S HISTORIC WAGH NAKH

Context: In a significant development, the **UK authorities have agreed to return the iconic 'wagh nakh,' a dagger shaped like tiger claws used by Maratha king Chhatrapati Shivaji Maharaj.**

- ◆ The small weapon is currently part of **London's Victoria and Albert Museum**.

About:

- ◆ The **'wagh nakh'** (Tiger Claws) an artifact **made of steel with four claws** mounted on a bar and two rings for the first and fourth fingers.
- ◆ This weapon holds historical significance as it was used by Shivaji Maharaj to kill **Afzal Khan**, the general of the **Bijapur sultanate in 1659**.
- ◆ It was designed to slash through skin and muscle.
- ◆ It holds a special place in the history for the people of Maharashtra.



- ◆ Its return symbolizes a significant milestone in the state's cultural legacy and the reverence it holds for its iconic leader, Chhatrapati Shivaji Maharaj.

Chhatrapati Shivaji Maharaj:

- ◆ He was born on 19th February 1630 at **Shivneri Fort** in District Pune in the present-day state of Maharashtra.
- ◆ He was born to **Shahaji Bhonsle**, a Maratha general who held the jagirs of Pune and Supe under the Bijapur Sultanate, and Jijabai, a pious woman whose religious qualities had a profound influence on him.
- ◆ Shivaji was not named after Lord Shiva. His name was derived from the name of a regional deity – '**Goddess Shivai**.'
- ◆ **Contributions:**
 - ▶ He revived ancient Hindu political traditions and court conventions and promoted the usage of Marathi and Sanskrit, rather than Persian, in court and administration.
 - ▶ India's **first-ever navy** in the modern era was built by Shivaji to protect the coast of Maharashtra.
 - ▶ He established a competent and progressive civil rule with the help of disciplined military and well-structured administrative organizations.

This year is been celebrating **350 years** of the coronation of **Chhatrapati Shivaji Maharaj**.

The **Ashta Pradhan** (Marathi: Council of Eight) set up by the Chhatrapati Shivaji Maharaj

- Peshwa (Prime Minister)
- Amatya (Finance Minister)
- Shurunavis (Secretary)
- Waqia-Navis (Interior Minister)
- Sar-i-Naubat (Commander-in-Chief)

- Sumant (Foreign Minister)
- Nyayadhish (Chief Justice)
- Panditrao (High Priest)

- ◆ He innovated military tactics, pioneering non-conventional methods (**guerrilla warfare**) and leveraged strategic factors like geography, speed, and surprise.
 - ▶ He focused on pinpoint attacks to defeat his larger and more powerful enemies.
 - ▶ A brave and genuinely secular ruler, he respected women and cared for the downtrodden and farmers.
- ◆ He died on **3rd April 1680**.

Who was Afzal Khan?

- ◆ He was a **17th-century commander** of the **Adil Shahi dynasty of Bijapur**.
- ◆ With Chhatrapati Shivaji's rise and increasing control of the region, Afzal Khan was seen as the man to subdue him in the Deccan.
- ◆ Khan put together a force of **10,000 cavalry** and marched from Bijapur to Wai, plundering Shivaji's territory along the way.
- ◆ Shivaji called a council of war at the **fort of Pratapgadh**, where most of his advisers urged him to make peace.
- ◆ During the meeting, an embrace between the two turned into an attack in which Shivaji emerged victorious. This was followed by a rout of the Adilshahi army at the hands of the Marathas.
- ◆ As per Maratha sources, Khan's remains were buried at the **fort and a tomb** was constructed on Shivaji's orders.

Important Battle:

Battle of Pratapgad, 1659	Fought at the fort of Pratapgad near the town of Satara, Maharashtra, between the forces of the Maratha king Chhatrapati Shivaji Maharaj and the Adilshahi general Afzal Khan .
Battle of Pavan Khind, 1660	Fought at a mountain pass in the vicinity of fort Vishalgad, near the city of Kolhapur, Maharashtra, between the Maratha Sardar Baji Prabhu Deshpande and Siddi Masud of Adilshahi .
Sacking of Surat, 1664	Fought near the city of Surat, Gujarat, between Chhatrapati Shivaji Maharaj and Inayat Khan , a Mughal captain.
Battle of Purandar, 1665	Fought between the Mughal Empire and Maratha Empire .
Battle of Sinhagad, 1670	Fought on the fort of Sinhagad near the city of Pune, Maharashtra between Tanaji Malusare, a commander of Maratha ruler Shivaji Maharaj and Udaybhan Rathod , fortkeeper under Jai Singh I who was a Mughal Army Chief.
Battle of Kalyan, 1682-83	Bahadur Khan of the Mughal Empire defeated the Maratha army and took over Kalyan.
Battle of Sangamner, 1679	Fought between the Mughal Empire and Maratha Empire. This was the last battle in which the Maratha King Shivaji fought .

AYUSHMAN BHAV CAMPAIGN

Context: In an event set to redefine healthcare accessibility and inclusivity across the country, the President inaugurated the 'Ayushman Bhav' campaign.

About the initiative:

- ◆ The 'Ayushman Bhav' campaign is a **comprehensive nationwide healthcare initiative** that aims to provide saturation coverage of healthcare services, reaching every village and town in the country.
- ◆ This groundbreaking initiative builds upon the success of the **Ayushman Bharat program** and signifies a paradigm shift in healthcare services.
- ◆ **Initiated by:** The **Ministry of Health and Family Welfare**.



- ◆ The campaign, which will be implemented during the **'Seva Pakhwada'**, embodies a whole-of-nation and whole-of-society approach.
- ◆ **Implementation:** It is a collaborative effort spearheaded by **Gram Panchayats** in coordination with the **Department of Health**, other government departments, and **local elected bodies** in the **rural and urban areas**.
- ◆ Its core objective is to extend comprehensive healthcare coverage to **every village and town**, transcending geographical barriers and ensuring that no one is left behind.
- ◆ This synergistic approach aims to saturate coverage of health services through its three components Ayushman - **Apke Dwar 3.0**, **Ayushman Melas at Health and Wellness Centres (HWCs) and Community Health Centres (CHCs) and Ayushman Sabhas** in every village and panchayat.
 - ▶ **Ayushman Apke Dwar 3.0:** This initiative aims to provide **Ayushman cards** to remaining eligible

beneficiaries enrolled under the PM-JAY scheme, ensuring that more individuals have access to essential health services.

- ▶ **Ayushman Melas at HWCs and CHCs:** These Melas at Ayushman Bharat- HWCs and CHCs will facilitate the **creation of ABHA IDs (Health IDs)** and issuance of Ayushman Bharat Cards.
- ▶ They will also offer early diagnosis, comprehensive primary health care services, teleconsultation with specialists, and appropriate referrals.
- ▶ **Ayushman Sabhas:** These gatherings in every village and Panchayat will play a pivotal role in distributing Ayushman cards, generating ABHA IDs, and raising awareness about vital health schemes and disease conditions, such as **non-communicable diseases, tuberculosis (Nikshay Mitra)**, sickle cell disease, as well as **blood donation and organ donation drives**.

DISABILITY CERTIFICATE' FOR SICKLE CELL PATIENTS

Context: The Government is planning for permanent disability certificates for Sickle-Cell Disease (SCD) patients for age 5+, now stalled for three years.

- ◆ The **Union government** has been publicising its campaign to "eradicate" **Sickle Cell Disease (SCD)** in India by 2047.

Background:

- ◆ SCD was included in the **list of disabilities** under the **Rights of Persons with Disabilities Act, 2016**, patients could only avail disability certificates with **one-year validity**.
- ◆ Later on, the DEPwD eventually increased the **validity of disability certificates** for SCD patients to three years, requiring a **minimum of 25% disability**.

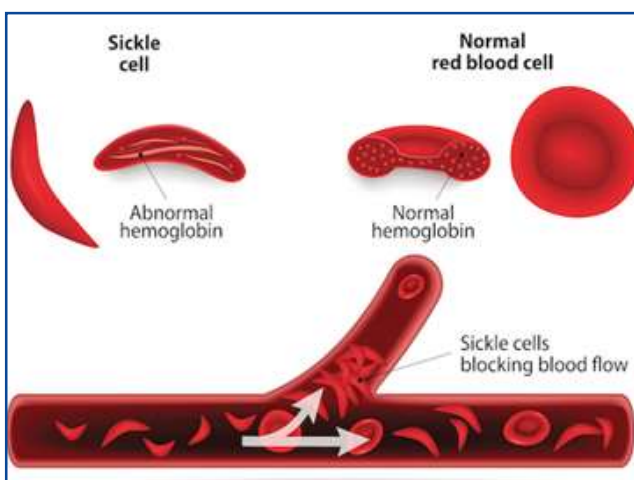
What is Disability Certificate?

- ◆ Disability certificates in India are official documents issued to individuals with disabilities to provide legal recognition of their disability status.
- ◆ These certificates are essential for accessing various government benefits, reservations, and support services aimed at improving the lives of people with disabilities.
- ◆ Disability certificates are typically issued by **medical boards or committees** appointed by the **state or central government**.
- ◆ These boards consist of **medical professionals** who assess and certify the **extent and type of disability**.

- ◆ Disability certificates are typically valid for a **specified period**, after which individuals may need to undergo a reassessment to determine if there have been **any changes in their disability status**.
- ◆ They are issued in compliance with the **Rights of Persons with Disabilities Act, 2016**, which provides a legal framework for **safeguarding the rights and interests of people with disabilities** in India.

Significance:

- ◆ Disability certificates play a crucial role in **accessing various government schemes and benefits**, including reservation in education and employment, financial assistance, transport concessions, and assistive devices.



What is Sickle Cell Disease (SCD)?

- ◆ SCD is a chronic single gene disorder causing a debilitating systemic syndrome characterized by chronic anemia, acute painful episodes, organ infarction and chronic organ damage and by a significant reduction in life expectancy.
- ◆ **Symptoms:** Symptoms of sickle cell disease can vary, but some common symptoms include:
 - ▶ **Chronic Anaemia:** leading to fatigue, weakness, and paleness.
 - ▶ **Painful episodes (also known as sickle cell crisis):** these can cause sudden and intense pain in the bones, chest, back, arms, and legs.
- ◆ **Treatment:**
 - ▶ Blood Transfusions: These can help relieve anaemia and reduce the risk of pain crises.
 - ▶ Hydroxyurea: This is a medication that can help reduce the frequency of painful episodes and prevent some of the long-term complications of the disease.
 - ▶ It can also be treated by **bone marrow or stem cell transplantation**.

National Sickle Cell Anaemia Elimination Mission:

- The National Sickle Cell Anaemia Elimination Mission was announced in the Union Budget 2023-2024.
- It will be implemented in 278 districts of 17 states in the country.



RBI DECIDES TO DISCONTINUE I-CRR

Context: The Reserve Bank of India (RBI) has decided to discontinue the incremental Cash Reserve Ratio (I-CRR) in a phased manner.

What is Incremental Cash Reserve Ratio (I-CRR)?

- ◆ The I-CRR is an **additional cash balance** that the RBI can ask banks to maintain over and above the **cash reserve ratio (CRR)**.



- ◆ Particularly during periods of surplus liquidity in the system this means that banks will be obligated to park a higher amount of liquid cash with the RBI.

CRR is the **minimum amount of the total deposits** that banks must keep **with the central bank – for a specific period**. Banks are currently required to maintain **4.5 percent of their Net Demand and Time Liabilities as CRR with the RBI**.

- ◆ Banks are required to maintain **liquid cash amounting** to a certain proportion of their deposits and certain other liabilities with the RBI.
- ◆ This is a tool at the **disposal of the RBI** to control the **liquidity in the economy** and can also act as a **buffer in periods of bank stress**.

What are the impacts of I-CRR?

- ◆ **Less fund availability with banks for lending:** The temporary increase in the Cash Reserve Ratio (CRR)

means that banks will have to set aside more of their funds with the Reserve Bank of India (RBI).

- ▶ This could lead to a **reduction in the funds** available for lending and an **increase in market interest rates**.
- ◆ **Less lending for loans:** This is because banks will be holding onto more of their resources rather than lending them out.
- ◆ **Can control Inflation:** This temporary increase in CRR is a measured approach to **manage the excess liquidity** caused by the recent demonetization of Rs.2, 000 notes.

- ◆ **Interest rates:** Short-term interest rates might rise due to tightening of fund supply in the economy, acting as an additional measure to counter inflation.

Important tools of Open Market Operations (OMO):

- ◆ Open Market Operations (OMO) are one of the **conventional monetary policy tools** used by central banks to **regulate the money supply and interest rates in an economy**. The main tools used in OMO are:

Government Securities Purchases	Central banks buy government securities (such as bonds or treasury bills) from financial institutions or the general public. This injects money into the financial system, increasing the money supply.
Government Securities Sale:	Conversely, central banks can sell government securities to financial institutions or the public. This reduces the amount of money in circulation, thus decreasing the money supply.
Repurchase Agreements (Repo):	In a repo, the central bank sells government securities with an agreement to repurchase them later. It allows the central bank to control the money supply while maintaining ownership of the securities .
Reverse Repurchase Agreements (Reverse Repo):	This is the opposite of a repo. In a reverse repo, the central bank buys government securities with an agreement to sell them back in the future. This temporarily reduces the money supply, as it takes money out of circulation .
Term Auction Facility (TAF):	This helps in managing liquidity over a specified term .
Marginal Standing Facility (MSF):	The MSF allows banks to borrow funds overnight from the central bank against the collateral of government securities . The interest rate on MSF is higher than the repo rate, which discourages banks from excessively relying on this facility



PEARL MILLET CULTIVATION ZONES IN INDIA

Context: According to a new study, India's core pearl millet or Bajra production zone has shifted to 18 districts spread across eastern Rajasthan and Haryana between 1998 and 2017.

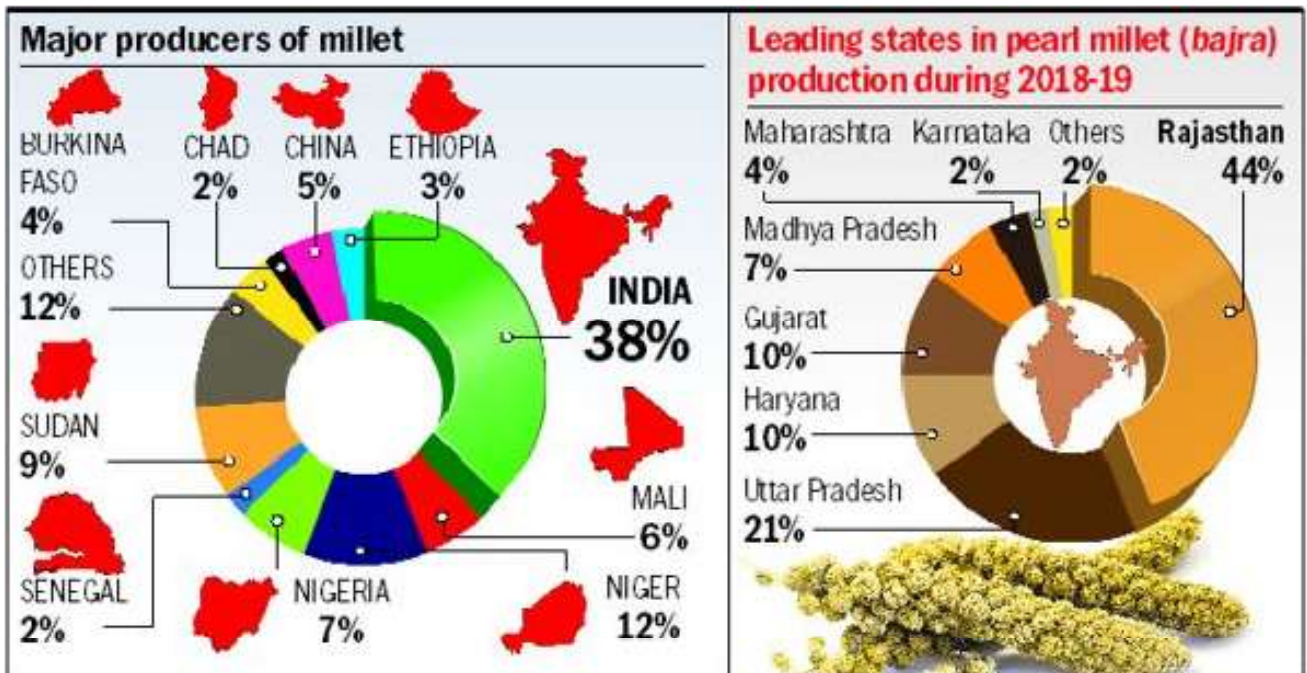
About the study:

- ◆ The study was conducted by **the International Crops Research Institute for the Semi-arid Tropics (ICRISAT)** and the **Indian Council of Agricultural Research – All India Coordinated Research Project on Pearl Millet (ICAR-AICRP)**.
- ◆ It examined data from crop models and digital technology and suggested a revision of the **Indian pearl millet Total Population Environments (TPE)**.

- ◆ It also suggested that an increase in rainfall triggered by **human-induced climate change** has led to the pearl millet zone shifting.

Pearl Millet and Zone Distribution in India:

- ◆ India classifies pearl millet cultivation zones based on **rainfall patterns and soil types**.
- ◆ **Zones are classified as;**
 - ▶ The arid regions of Rajasthan, which receive less than 400 millimeters (mm) of rainfall, are categorized as **Zone 'A1'**.
 - ▶ Semi-arid regions in north and central India, including **southern Rajasthan, Haryana, Gujarat, and Uttar Pradesh**, which receive more than 400 mm of rainfall per year, form **Zone 'A'**.
 - ▶ Semi-arid regions with heavy soils in **southern India and central western India** with over 400 mm of rainfall from **Zone B**.



International Year of Millets:

- Food and Agriculture Organization (FAO) and United Nations have recognized 2023 as **International Year of Millets** or IYM2023 for awareness about health and nutritional benefits of millets.

Key Findings of the study:

- ◆ **Sub-classifications:** The paper revised 'A' into three subzones — 'G', 'AE1', and 'AE2'.
 - ▶ Zone 'G' covers Gujarat while AE1 covers eastern Rajasthan and Haryana.
 - ▶ Zone 'AE2' covers 12 districts spread across Uttar Pradesh and Madhya Pradesh.
- ◆ 'AE1', which is now **India's core pearl millet production area** with 39 percent production, saw an increase in production of 46 kilograms per hectare, owing to an **increase in rainfall**.
- ◆ The researchers noted that **technological investments in irrigation, fertilization and new varieties** that favored intensified cultivation practices also led to an **increase in the zone's pearl millet production**.
- ◆ 'AE2' saw an average increase of 1,860 kg per hectare in bajra production between 1998 and 2017.
- ◆ **Shifting trends:** The paper also noted that **climate change** is contributing to more rainfall in **Zone 'G'** covering seven districts in Gujarat.
 - ▶ This has led to farmers changing their cultivation patterns and switching **from pearl millet to cash crops**.



The Pearl Millet:

- ◆ The three major millets cultivated in India are **Jowar, Bajra, and Ragi**.
- ◆ Bajra is also known as **the pearl millet**.
- ◆ **Scientific name:** *Pennisetum glaucum*
- ◆ It is cultivated mainly in **the semiarid tropics**, almost exclusively by subsistence and small-scale commercial farmers.
- ◆ **Optimal temperature requirement:** Pearl millet grows best at temperatures between **27 to 32 degrees Celsius** (81 to 90 degrees Fahrenheit).
- ◆ **Temperature Tolerance:** Pearl millet is known for its ability to withstand **high temperatures**, even exceeding **40 degrees Celsius (104 degrees Fahrenheit)**.

Significance:

- ◆ Pearl millet is gaining importance as a climate-resilient and health-promoting nutritious crop.

- Recent evidence using microsattellites suggests the **monophyletic origin of pearl millet** and its further **migration and secondary diversification** leading to enormous diversity.

A Scientific update:

- Genetic erosion of landraces** has been evident in different pearl millet growing regions due to replacement with modern cultivars.
- Large variability found in **pearl millet germplasm** has been conserved in several gene banks.
- Toward enhancing the **utilization of pearl millet germplasm**, available subsets like core and minicore collections and reference sets should be extensively evaluated to identify trait-specific germplasm and develop genomic resources to associate sequence differences with trait variations.



HEATWAVES LEADING TO OZONE POLLUTION

Context: As per the **World Meteorological Organization (WMO) Report, Climate change intensifies heatwaves, elevating wildfire risk and aggravating ozone pollution.**

Highlights of the Report:

- According to the report, Heatwaves and wildfires are closely linked and the **Smoke from wildfires** contains a lot of chemicals that affect not only air quality and health, but also damage **plants, ecosystems, and crops** — and leads to more **carbon emissions and more greenhouse gases** in the atmosphere.
- Short-lived reactive gases such as **nitrogen oxides and biogenic volatile organic compounds** lead to the **production of ozone and particulate matter (PM)**.
- Concerns:**
 - The increase in ozone levels impacted agriculture globally, with ozone-induced crop losses averaging **4.4 percent–12.4 percent for staples**.
 - Losses for **wheat and soybean** were as high as **15 per cent-30 percent** in key agricultural areas of India and China.

How does ground-level ozone form?

- Tropospheric, or ground level ozone, is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC).

- This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight.

Urban heat islands:

Urban areas often consist of buildings and infrastructure reaching heights of 100 m or more, which influence wind and temperature patterns compared to surrounding rural areas.

About Ozone:

- Ozone (composed of three atoms of oxygen) occurs both in the Earth’s upper atmosphere (stratosphere) and at ground level (troposphere). It can be good or bad, depending on where it is found:
 - Good Ozone:** Ozone occurs naturally in the Earth’s upper atmosphere (Stratosphere) where it forms a protective layer that shields us from the sun’s harmful ultraviolet rays.
 - Ozone-depleting gases like **chlorofluorocarbons (CFCs), HCFCs, and halons**, destroy this protective shield and cause a hole in the ozone.
 - India had adopted the **Kigali Amendment** (aims to phase down hydrofluorocarbons).
 - Bad Ozone:** In the Earth’s lower atmosphere (troposphere) near ground level, ozone is formed when pollutants emitted by **cars, power plants, industrial boilers, refineries, chemical plants**, and other sources react chemically in the presence of sunlight.
 - Surface level Ozone is a harmful air pollutant.

Impacts of Ozone Pollution:

- Surface level Ozone causes damage to **crops and forests**.
- Irritation can occur in the **respiratory system** giving rise to coughs and an uncomfortable sensation in the chest.
- Ozone worsens bronchitis, emphysema, asthma, etc. and increases the risk and susceptibility to pulmonary inflammation like **Chronic Obstructive Pulmonary Disease (COPD)**.
- It may reduce **lung function and make breathing difficult**



GLOBAL STOCKTAKE REPORT

Context: **UN climate secretariat releases the Global Stocktake Report, a synthesis report on G-20 summit discussing countries’ progress toward Paris Agreement goals before the event.**

The Global Stocktake Report:

- ◆ **About:** It is a **45-page report** which lays out **17 'key findings'** that overall suggests that the world is not on track to **achieve Paris Agreement targets**, though there was still a "rapidly narrowing" window for countries to get their act together.



- ◆ The 'global stocktake' is a **periodic review** conducted every **five years** to assess how well countries are doing in achieving the goals of the Paris Agreement, which aims to limit global temperature rise to well below 2 degrees Celsius and ideally below **1.5 degrees Celsius**.
- ◆ The **first global stocktake report** this year will have a significant impact on discussions during the **28th UN climate Conference of Parties (COP)** scheduled for November in Dubai.
- ◆ The global stocktake not only reviews past efforts but also encourages countries to set more ambitious climate targets. This can lead to nations committing to stronger actions to **reduce greenhouse gas emissions before they announce updated NDCs in 2025**.

Key Highlights of the Report:

- ◆ **Paris Agreement Goals:** The report highlights that the **Paris Agreement** has motivated countries to set climate goals and recognize the urgency of the climate crisis.
- ◆ **Ambitious Emissions Reduction:** The report stresses that much more ambitious actions are required to reduce global greenhouse gas emissions by **43% by 2030** and achieve net-zero CO2 emissions globally by 2050. It calls for the rapid elimination of unabated fossil fuels.
- ◆ **Deforestation and Land Use:** Halting deforestation and land degradation is crucial, along with promoting sustainable agricultural practices to reduce emissions and enhance carbon sinks.
- ◆ **Adaptation and Loss & Damage:** Efforts to adapt to climate change impacts need to be more comprehensive and supported by transparent reporting. Urgent action is required to address loss and damage caused by climate change.

- ◆ **Climate Finance:** The report emphasizes the need to enhance access to climate finance in developing countries and redirect financial flows toward low greenhouse gas emissions and climate-resilient development to meet global investment needs.

Significance:

- ◆ The Report will help countries evaluate progress and consider increasing their climate commitments.
- ◆ Countries set their climate goals, known as Nationally Determined Contributions (NDCs), which they aim to achieve.
- ◆ These NDCs are reviewed during the global stocktake, encouraging nations to enhance their targets to combat climate change.

Paris Agreement and Goals:

- The primary objective of the Paris Agreement is to strengthen the global response to climate change and keep the global average temperature rise well **below 2 degrees Celsius** above pre-industrial levels, with efforts to limit the **increase to 1.5 degrees Celsius**.
- Each **participating country (known as a Party)** submits a **Nationally Determined Contribution (NDC)** outlining its specific climate action plan.
- These NDCs include targets for reducing greenhouse gas emissions, adapting to climate impacts, and enhancing resilience.
- Developed countries commit to providing **financial support to developing countries** to assist them in both mitigating emissions and adapting to climate change.
- The agreement aims to mobilize climate finance from various sources to help developing countries transition to low-carbon, climate-resilient economies.



PLANETARY BOUNDARIES

Context: As per the recent study, **six of 9 planetary boundaries** which are **necessary to maintain Earth's stability and resilience** have been breached because of human activities.

What are Planetary Boundaries?

- ◆ Planetary boundaries are thresholds within which **humanity can survive, develop and thrive for generations to come**.
- ◆ They are divided into **nine boundaries**, which are created a **safe operating limit for survival**.

The nine planetary boundaries are;

- Stratospheric ozone depletion
- Loss of biosphere integrity (biodiversity loss and extinctions)
- Chemical pollution and the release of novel entities.
- Climate Change
- Ocean acidification
- Freshwater consumption and the global hydrological cycle
- Land system change
- Biogeochemical flows (nitrogen and phosphorus),
- Ocean acidification,
- Atmospheric aerosol pollution,
- Release of novel chemicals

◆ The planetary boundaries framework helps scientists to **track and communicate** how these rising pressures are destabilizing our planet.

About the study:

- ◆ This is the **third iteration of the framework** carried out by 29 scientists from **eight different countries**.
- ◆ As per the assessment **six of 9 planetary boundaries** have been exhausted.
- ◆ It mentioned that the **six boundaries include;**
 - ▶ Climate change,
 - ▶ biosphere integrity (genetic diversity and energy available to ecosystems),
 - ▶ land system change,
 - ▶ freshwater change (changes across the entire water cycle over land),
 - ▶ biogeochemical flows (nutrient cycles), and
 - ▶ Novel entities (microplastics, endocrine disruptors, and organic pollutants).
- ◆ The researchers **set the planetary boundary** for atmospheric **carbon dioxide concentration** and radiative forcing (represents the size of the energy imbalance in the atmosphere) **at 350 parts per million (ppm) and 1 Watts per square meter (Wm^{-2}), respectively.**
- ◆ Currently, this has reached **417 ppm and is 2.91 Wm^{-2}** .
- ◆ The planetary boundary of novel entities was **calculated to be zero**. This means humans have transgressed this limit as well.

It is estimated around **one million of the 8 million plant and animal species** are threatened with extinction, and **over 10 per cent of the genetic diversity** of plants and animals may have been wiped out over the last 150 years.

**INDIA'S DEEP-SEA SUBMERSIBLE MATSYA 6000**

Context: The government recently shared images of India's Matsya 6000 submersible on social media.

What is Matsya 6000?

- ◆ The Matsya 6000 is a **three-person submersible** that will be able to go 6,000 metres under the sea.
- ◆ Meaning 'fish' in Hindi, the vessel is being developed by Chennai's **National Institute of Ocean Technology (NIOT)**.
- ◆ Made of 80mm-thick titanium alloy, it will be able to withstand a pressure 600 times greater than that at sea level.
 - ▶ All research missions globally rely on titanium
- ◆ The Matsya 6000 will be able to operate from 12 to 16 hours straight and will have an oxygen supply of 96 hours.
- ◆ It will feature the **ultra short baseline acoustic positioning system (USBL)**.
 - ▶ This will allow the mothership carrying the transponder to send information and the submersible to respond.
 - ▶ This will let the mothership know where the submersible is.
- ◆ It will likely undergo trials in 2024 in the Bay of Bengal.
- ◆ It is part of **India's Samudrayaan project** to explore the deep sea. The Samudrayaan project is part of India's Rs 4,077-crore **Deep Ocean Mission**.

Only five nations – **France, the US, China, Russia and Japan** – have thus far created man submersibles.

**NIPAH VIRUS OUTBREAK IN KERALA**

Context: Nipah virus attacks returned to Kerala, with two deaths reported from Kozhikode district.

About Nipah Virus Infection:

- ◆ It is a **zoonotic virus** (it is transmitted from animals to humans).
- ◆ The organism which causes **Nipah Virus encephalitis** is an **RNA or Ribonucleic acid virus** of the family Paramyxoviridae, genus Henipavirus, and is closely related to Hendra virus.

- ◆ Hendra virus (HeV) infection is a rare emerging zoonosis that causes severe and often fatal disease in both infected horses and humans.
- ◆ It first broke out in **Malaysia and Singapore** in 1998 and 1999.
- ◆ **Vectors:** It first appeared in domestic pigs and has been found among several species of domestic animals including **dogs, cats, goats, horses and sheep**.
- ◆ **Transmission:**
 - ▶ The disease spreads through fruit bats or '**flying foxes**,' of the genus *Pteropus*, who are natural reservoir hosts of the **Nipah and Hendra viruses**.
 - ▶ The virus is present in bat urine and potentially, bat faeces, saliva, and birthing fluids.
- ◆ **Symptoms:**
 - ▶ The human infection presents as an encephalitic syndrome marked by fever, headache, drowsiness, disorientation, mental confusion, coma, and potentially death.

Currently, there are **no vaccines** for both humans and animals. Intensive supportive care is given to humans infected by Nipah virus.

Recent Update:

- ◆ Recently, Scientists detected the presence of **IgG antibodies against Nipah virus infection (NiV)** in 51 bats that were captured from **Karnataka, Kerala, Tamil Nadu and Puducherry**.

What is Antibody?

- ◆ Antibody, also called immunoglobulin, is a protective protein produced by the immune system in response to the presence of a foreign substance, called an antigen.
- ◆ A wide range of substances are regarded by the body as antigens, including disease-causing organisms and toxic materials.
- ◆ Antibodies recognize and attack onto antigens in order to remove them from the body.
- ◆ **Types of Antibodies:**
 - ◆ **IgG:** It is the main antibody in blood and it has a powerful ability to bind to bacteria and toxins, and thus it takes on an important role in the biological defense system.
 - ▶ It is the only isotype that can pass through the placenta, and IgG transferred from the mother's body protects a newborn.



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Section D [QUIK BYTES]

- ☞ Shiva's Nataraja form
- ☞ 75th anniversary of Operation Polo
- ☞ Banglar Mati Banglar Jol
- ☞ Cheriyal scroll painting
- ☞ Morocco quake
- ☞ Badai Bazaar
- ☞ Payments Council of India (PCI)
- ☞ Skill India Digital Platform
- ☞ Swachh Vayu Sarvekshan 2023
- ☞ Fast infinitesimal time coalescent process" (FitCoal) method
- ☞ Bharat Bill Payment System (BBPS)
- ☞ Govt relaxes import duty
- ☞ Nifty 50 crosses historic 20,000 milestone
- ☞ First herpetofaunal survey
- ☞ World Electrical Vehicle (EV) Day
- ☞ Shanti Swarup Bhatnagar Prizes for 2022

[LOCATION IN NEWS]

- ☞ Idukki dam
- ☞ Atlas Mountains

Shiva's Nataraja form



The magnificent **Nataraja sculpture** that has been installed at Bharat Mandapam, the venue of the G20 Leaders' Summit, portrays its iconic consideration under the Great Cholas.

About the Nataraja form of Shiva:

- The Cholas were **devout Shaivites**, building elaborate Shiva temples (like the one in Thanjavur) across their territories.
- Shiva was first portrayed in **sculpture as Nataraja** in the fifth century AD, a form that evolved under the Cholas.
- Shiva has evolved from the **Vedic deity Rudra**.
- In many ways, he is the most **complex god of the Puranic pantheon**.

Statue characteristics:

- Nataraja is encompassed by **flaming aureole or halo**, interpreted as "the circle of the world which he [Nataraja] both fills and oversteps."
- The Lord's long dreadlocks flare out due to the **energy of his dance**, and he strikes a **rhythmic pose with his four arms**.

The **27-foot-tall 'Nataraja'** statue made of **'Ashtadhatu'** is installed at the Bharat Mandapam for G20 summit.

- In his upper right hand, He holds a **damru (a hand drum)**, whose sounds "draw all creatures into his rhythmic motion", and in his upper left arm, **he holds agni (fire)**, which he can wield to destroy the universe.
- The crafting process adopted was the traditional **'lost-wax' casting** method which is indigenous to the Chola era.

75th anniversary of Operation Polo



September 13 marks the anniversary of **Operation Polo**.

About:

- '**Operation Polo**', the military action launched by the Indian Army on September 13, 1948, to integrate the **princely state of 'Hyderabad'**.
- Situated in the Deccan, Hyderabad was one of the most **populous and richest states** and had **17 districts including Aurangabad** (now in Maharashtra) and Gulbarga (now in Karnataka).
- The landlocked state had a majority **Hindu population** with the state administration almost entirely run by its **Muslim rulers**.
- The Nizam was reluctant to accede to either **India or Pakistan** and sought to maintain his state's independence.
- There was **no common border** with Pakistan but the Nizam had every intention to have fraternal relations with that country.

Outcome of the operation:

- The Indian military quickly achieved control over Hyderabad, and the Nizam's forces surrendered on **September 17, 1948.**
- Hyderabad was integrated into the Indian Union, becoming the **new state of Hyderabad.**
- Sardar Vallabhbhai Patel, India's Deputy Prime Minister and Minister of Home Affairs, **played a key role in the integration process.**

Cheriyal scroll painting



A **Cheriyal scroll painting** from Telangana is one of the gifts that first **ladies or spouses of heads** of state from around the world got who gathered for the G20 Summit in New Delhi.

About Cheriyal scroll painting:

- These paintings are one of the **oldest art forms of the region**, embodying its rich storytelling traditions.
- A narrative painting and performance tradition, Cheriyal scroll painting has been practised in the town of **Cheriyal in Siddipet district, Telangana** since the seventeenth century.
- Cheriyal scroll paintings are made by artists known as **Nakashis**, who belong to the **Madiga, Goud, Mudiraj, Mala, Padmashali, Chakali** and other non-dominant caste communities in the region.
- They are made on a long vertical piece of cloth in a narrative form. Traditional folk singers would narrate the stories using cheriyal as a tool for visual presentation.
- The size of paintings varies from 1 foot to 60 feet depending upon the number of characters depicted in the story on the painting.
- Their folktales form a major part of the narratives in the paintings, along with caste-specific renderings of tales from **the Puranas, the Mahabharata, and the Ramayana.**
- Historically, the scrolls were used as **illustrations for storytelling performances by travelling bards**

Morocco quake

Morocco witnessed one of the deadliest earthquakes of about 6.8 Magnitude recently.

About:

- The **earthquake's epicentre** was located **72 km (45 miles) southwest of Marrakech**, a city renowned for its historical and architectural treasures.
- Parts of Marrakech's old city, a UNESCO World Heritage site, have also been damaged.

About the location:

- Morocco is a country located in **North Africa**, known for its remarkable geographical diversity.



- It features a diverse landscape that includes the **Atlas Mountains**, **Sahara Desert**, **fertile plains**, and a long coastline along the **Atlantic Ocean** and the **Mediterranean Sea**.

Strait of Gibraltar

The **Strait of Gibraltar** connects the Atlantic Ocean with the Mediterranean Sea and separates Spain on the European continent from Morocco on the African continent.

Banglar Mati Banglar Jol



The West Bengal Assembly adopted a resolution declaring **Banglar Mati, Banglar Jol (Bengal's soil, Bengal's Water)** song written by Nobel laureate **Rabindranath Tagore** as the state anthem.

About:

- Written in **1905** in the context of **Viceroy Lord Curzon's partition of Bengal**, the song became an anthem for those fighting against Britain's divide and rule policy.
- This song became an anthem of the movement against Bengal's partition, sung during rapturous processions and demonstrations that sought to emphasise Bengali unity.

Partition of Bengal

- George Nathaniel Curzon (1859-1925) was appointed **Viceroy of India** in 1899.
- He designed and prepared a comprehensive, feasible plan for the partition of Bengal in 1905.
- On **16th October 1905**, the Partition of Bengal came into force and the proposal was legally implemented.
- Following the partition, an anti-British movement formed that involved non-violent and violent protests, boycotts and even an assassination attempt against the Governor of the new province of West Bengal.
- Due to these political protests, the **two parts of Bengal were reunited in 1911**.
- During the Delhi Durbar on **12th December 1911**, George V, then emperor of India, along with the Queen made the announcement that Capital of India shifted from Calcutta to Delhi.

Badai Bazaar

Malappuram Municipality of Kerala opens its first '**Badai Bazaar**', a centre for elderly serving **free of cost**.

About:

- The word badai means **bragging or boasting** in Malayalam slang.



- As the name suggests, Badai Bazaars are meant to be spaces to while away their time chatting and bragging.
- The Badai Bazaar will remain open for people **above 60 years** of age **from 6 a.m. to 7 p.m.**
- Newspapers, magazines, and television are being sponsored by business establishments.
- Each centre will be managed by a committee of senior citizens who use them. Several programmes, including **medical checkups and excursions**, are in store for those reaching Badai Bazaars.

Payments Council of India (PCI)



The **Global Fintech Fest 2023** was recently organized by the National Payments Corporation of India (NPCI), **Payments Council of India (PCI)** and **Fintech Convergence Council (FCC)**.

About:

- **Payments Council of India (PCI)** is a body representing over 85% of the **non-bank companies** in the Payments ecosystem and was formed to effectively cater to the needs of the digital payments industry.
- **Objective:** to identify and build opportunities to address and help resolve industry-level issues and barriers that require **industry-level discussion and action**.
- The council works with all its members to promote payments industry growth and scale the vision of the payments ecosystem in India.
- Payments Council of India's '**Project Pratima**' it aims to introduce a uniform set of icons for basic payment actions and processes. The project aims to improve trust, security and familiarity of digital payment icons.

Skill India Digital Platform



Union Minister for Education and Skill Development and Entrepreneurship has launched **Skill India Digital (SID) platform**.

About:

- The platform embodies the aspirations and dreams of millions of Indians who seek better opportunities and a brighter future as it extends industry-relevant skill courses, job opportunities, and entrepreneurship support.
- SID is the **Digital Public Infrastructure (DPI)** for skilling, education, employment, and entrepreneurship ecosystem of India. Driven by the vision to make skill development more innovative, accessible, and personalized in its embodiment, focusing on **digital technology** and **Industry 4.0 skills**, the state-of-the-art platform will be a breakthrough in accelerating skilled talent hiring, facilitating lifelong learning and career advancement.

- The platform aligns perfectly with the vision articulated in the G20 framework for building DPI and the digital **economy to promote digital skills and digital literacy**.
- It is also a comprehensive information gateway for all government skilling and entrepreneurship initiatives – **a go-to hub for citizens** in pursuit of career advancement and lifelong learning.

Swachh Vayu Sarvekshan 2023



The Union Ministry of Environment, Forest and Climate Change has announced awards under the **Swachh Vayu Sarvekshan 2023** (clean air survey) in Bhopal for year 2023.

About the survey:

- It was the second year of the Swachh Vayu Sarvekshan, carried out by the ministry based on self-assessments submitted by **130 identified cities** under the National Clean Air Programmes.
- The awards are announced in **three categories of cities** — million plus cities, cities with a population between **three and ten lakh** and cities of under **three lakh population** — based on the 2011 population census.
- **For million plus population:**
 - Indore in Madhya Pradesh has achieved the top rank in the million-plus population cities.
 - Agra in Uttar Pradesh secured the **second rank**, followed by Thane in Maharashtra on the **third spot**.
- **In the second category (Between 3 to 10 lakh population):**
 - Amravati of Maharashtra has secured the first rank, followed by Moradabad (Uttar Pradesh) and Guntur (Andhra Pradesh).
- **In third category (under Three lakh population):**
 - Two Himachal Pradesh towns — **Parwanoo and Kala Amb** — have bagged the first two positions
 - Angul in Odisha secured the third place.
- **Parameters defined:** The cities were assessed on eight major points, including control of biomass and municipal solid waste burning, road dust, dust from construction and demolition waste, vehicular emissions, industrial emissions, public awareness, and **improvement in PM10 concentration**.

Fast infinitesimal time coalescent process” (FitCoal) method

A **novel genomic analysis technique** has helped reveal the reasons for a ‘bottleneck’ in the growth of the human population that almost wiped out the chance for humankind as it exists today.

- They were able to determine **demographic characteristics** using modern-day human genome sequences from 3,154 individuals and a new analytical method called **fast infinitesimal time coalescent process (FitCoal)**.

**About:**

- A new method called FitCoal determined that **early human ancestors** went through a prolonged and severe bottleneck during the early to middle Pleistocene era.
- Approximately **65.85% of current genetic diversity** may have been lost during the bottleneck.
- Population bottlenecks, as significant reductions in a group's numbers are known, are not uncommon.
- When a species is devastated by an event such as **war, famine, or climate crisis**, the resulting drop in genetic diversity can be traced through the progeny of the survivors.
- The FitCoal method could also be used to answer other questions about early **human ancestry and evolution**

First herpetofaunal survey

As many as **67 species of reptiles** and **59 species of amphibians** were identified in the **first herpetofaunal survey** that concluded recently in the **South Wayanad Forest Division**.

Herpetology is the **branch of zoology** concerned with the **study of amphibians** (including frogs, toads, salamanders, newts, and caecilians (gymnophiona)) and **reptiles** (including snakes, lizards, amphisbaenids, turtles, terrapins, tortoises, and crocodilians).

Highlights of the survey:

- **About:** The five-day programme was organised jointly by the Forest department, South Wayanad Forest Development Agency, and Aranyakam Nature Foundation.
- **Species found:**
 - ▶ **The important amphibian species** recorded during the survey include **Starry Night Frog, Miniature Night Frog**, and endangered species such as **Malabar Torrent Toad and Red Stream Toad**.
 - ▶ The survey commenced with the recording of the **Green Tree Frog** and culminated with a compendium of **59 amphibians**, of which over **80%** are uniquely found in the Western Ghats.
 - ▶ Of the **67 reptile species** sighted, 21 are unique to the Western Ghats.
- **Other species:**
 - ▶ Wayanad Dravidogecko, Nilgiri Spiny Lizard, and the Nilgiri Forest Lizard were found.

Wayanad Wildlife Sanctuary:

- Located in Kerala, **Wayanad Wildlife Sanctuary (WWS)** is an integral part of the Nilgiri Biosphere Reserve.
- It was established in **1973**.
- **Kabini River** (a tributary of Cauvery River) flows through the sanctuary.



World Electrical Vehicle (EV) Day



World EV day is celebrated on **9th September**.

About:

- World EV Day is marked internationally on September 9 every year in **celebration of e-mobility**, and a day to shift the transition to sustainable transport with **consumer, business, and policy outcomes**.
- In the Indian context, the day specifically takes on importance, especially with respect to the country's **2070 net zero commitment**.
 - ▶ The country targets a reduction of total projected carbon emissions by **one billion tonnes by 2030**.
- The government has announced initiatives such as:
 - ▶ **FAME India (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India)**
 - ▶ **PLI schemes** to drive local production
 - ▶ **Battery swapping policy**

Bharat Bill Payment System (BBPS)



Non-resident Indians (NRIs) living in the UK are set to join a select group who can directly pay bills on behalf of their family in India through the **Bharat Bill Payment System (BBPS)**.

About:

- Bharat Bill Payments System is an integrated bill payment system or a platform which acts as a **connection between various billers and users**.
- It offers customers the convenience of payment by cataloguing various utility providers under one platform.
- It acts as a central reference for a customer who wants to make different payments — whether utility bills, loan repayments, FasTag recharge, and so on.
- BBPS was conceptualised by the **Reserve Bank of India** in 2013 and is a product of the **National Payments Council of India (NPCI)**.
- It was piloted in 2016 and went live a year later. By 2019, BBPS onboarded all recurring payments.
- There are two key components in the BBPS system —
 - ▶ **Bharat Bill Payment Central Unit (BBPCU)**: The BBPCU is NPCI, which lays down the operating procedures and standards for BBPS.
 - ▶ **Bharat Bill Payment Operating Units (BBPOUs)**: BBPOUs adhere to the rules set by BBPCU.
- NPCI, as the BBPCU, undertake clearing and settlement activities.

Govt relaxes import duty



The fruit growers in Kashmir are concerned after the Centre lifted additional duties (imposed in 2019) on **apples, walnuts and almonds** imported from the United States.

About Import duty:

- Import duty is a **type of tax levied on the import and specific exports** of a nation's customs authorities.
- The value of goods will generally decide the amount of import duty that will be imposed.
- Sometimes, import duty is also referred to as customs duty, import tax, import tariff, or tariff.
- The import duties have two different purposes:
- Increasing income to the local government
- Encouraging the individuals to purchase the local products which don't attract any import duties.

- Kashmir is **India's largest apple grower**, fetching revenue over ₹8,000 to ₹10,000 crore to the UT, and contributing around 8-10% of its gross domestic product.
- The UT produces around 20 lakh metric tonnes of apples per year.

Nifty 50 crosses historic 20,000 milestone



The National Stock Exchange's flagship index, Nifty 50, has made history by reaching the 20,000 milestone.

What is Nifty 50?

- Nifty 50, or Nifty, is the flagship index of the National Stock Exchange (NSE) and consists of the top 50 companies listed on the exchange based on their market cap.
- Also known as **large-cap or blue-chip stocks**, companies included on the index belong to diverse sectors like auto, metals, pharma, media, IT, FMCG, telco, and energy.
- The index is reconstituted every six months.
- The Nifty 50 today uses the float-adjusted and market capitalisation-weighted method.

Market Capitalisation

- It refers to the aggregate value of the shares held by the company and all its investors.
- But **free-float Market Capitalisation** excludes the shares held by investors like the government, trusts, and other private parties like promoters.

Shanti Swarup Bhatnagar Prizes for 2022



12 scientists have been named as the winners of the **Shanti Swarup Bhatnagar Prizes for 2022**.

Key-highlights:

- The prize-winners list released by the **Council of Scientific and Industrial Research (CSIR)** comes after an unexplained delay of nearly a year in the announcement always made on September 26 — the CSIR's foundation day.
- The CSIR had announced the Bhatnagar winners for 2021 nearly two years ago.

About the Award

- **Released by:** The Council of Scientific and Industrial Research (CSIR)
- The Bhatnagar prizes are named after S.S. Bhatnagar, who was the CSIR's first director general from 1942 to 1954.
- These awards are given every in seven scientific disciplines – **physics, biology, engineering, mathematics, medicine, chemistry, and earth sciences**.

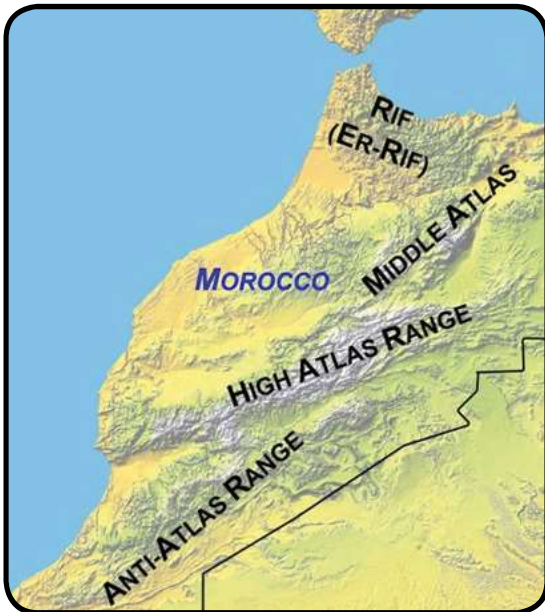
LOCATION IN NEWS

Idukki dam



- Idukki Dam is in the **Indian state of Kerala**, specifically in the district of Idukki.
- It is situated in the **Periyar River** and serves the purpose of generating hydroelectric power.
- Constructed between **1969 and 1973**, Idukki Dam stands as one of the **tallest arch dams in Asia**.
- This dam was constructed along with two other dams at Cheruthoni and Kulamavu.
- It was inaugurated by the then Prime Minister of India, Indira Gandhi, in 1976.
- The dam and its associated reservoir have significant ecological importance.
- It has led to the creation of a unique ecosystem in the area, with several species of flora and fauna thriving in the region.
- The forests surrounding the reservoir are part of the Idukki Wildlife Sanctuary, which is known for its rich biodiversity.

Atlas Mountains



Recently, scientist studied the epicentre of Morocco's devastating earthquake in the High Atlas Mountains, about **71km south-west of Marrakesh**.

About Atlas Mountains:

- The Atlas Mountains are a fascinating range in north-west Africa, spanning Morocco, Algeria and Tunisia.
- They are situated south of the main Eurasia and Africa (Nubia) tectonic plate boundary.
- The Atlas Mountains in north-western Africa are the prominent structure in the boundary zone between the converging African and Eurasian plates in the western Mediterranean.
- The Atlas Mountains range extends over **500 kilometres** from the south of Iberia to the bottom of the Sahara.
- The stress along these fault lines can induce earthquakes as rocks abruptly shift to release accumulated stress, which is characteristic of a seismic fault.

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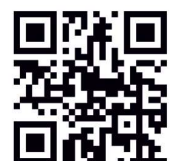
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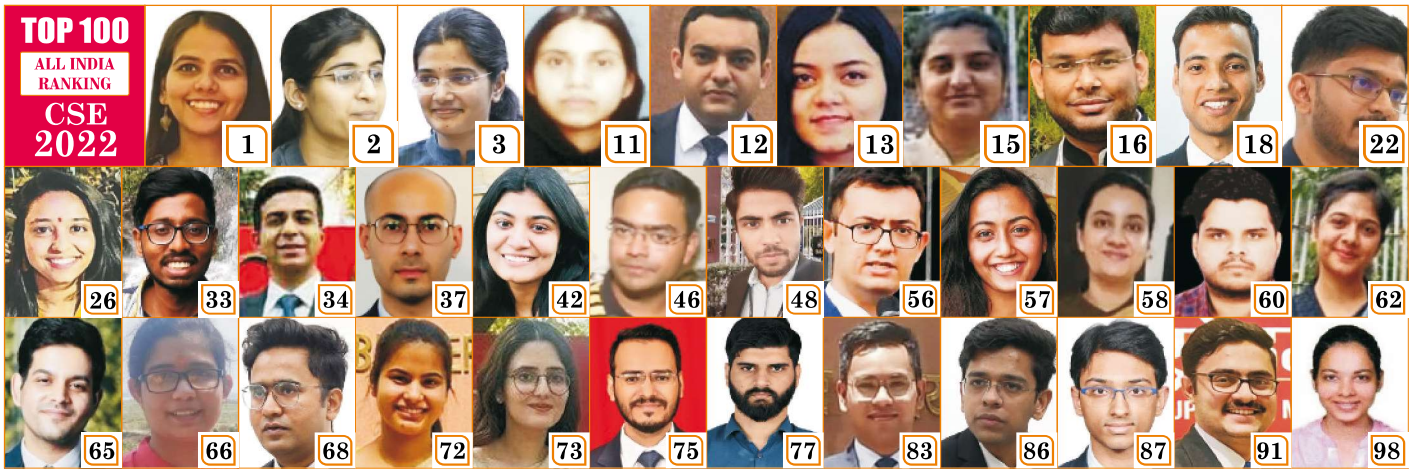
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