INTERNATIONAL RELATIONS

(Geopolitics; India and the World; India and it's Neighbourhood)
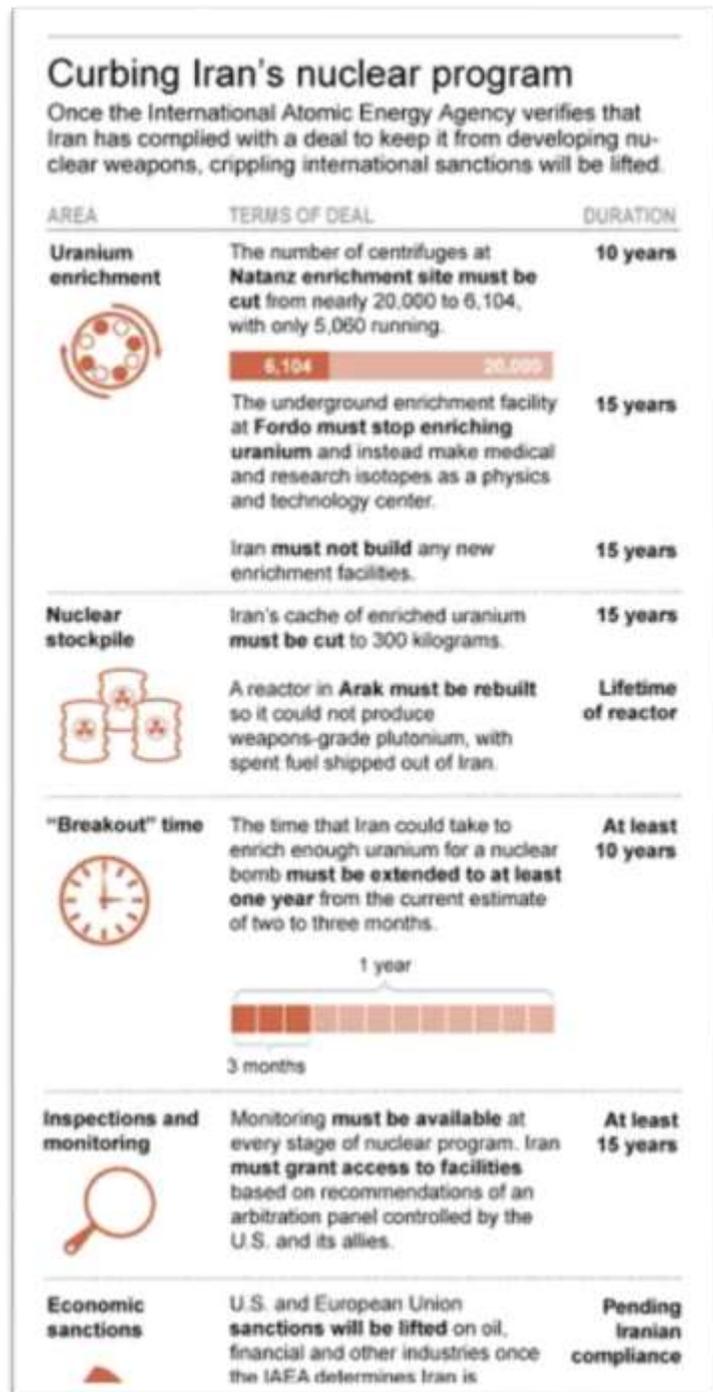
JCPOA

Recent

The talks in Vienna to revive the nuclear agreement with Iran, referred to as the Joint Comprehensive Plan of Action (JCPOA), entered "the last stage" at the end of February. But, the Ukraine conflict has complicated talks on the Iran nuclear deal.

About JCPOA

o The Joint Comprehensive Plan of Action (JCPOA) is a detailed agreement with five annexes reached by **Iran and the P5+1** (China France, Germany, Russia, the United Kingdom, and the United States) on July 14, 2015.

o The nuclear deal was endorsed by **UN Security Council Resolution 2231**, adopted on July 20, 2015.

o Iran's compliance with the nuclear-related provisions of the JCPOA is verified by the International Atomic Energy Agency (IAEA) according to certain requirements set forth in the agreement.

Timeline for Implementation

o **July 14, 2015, Finalization Day**: conclusion of the agreement. Finalization day triggers Iran and the United States to begin domestic review processes of the JCPOA. Iran also begins providing the IAEA with information necessary for the agency to complete its investigation into past activities related to nuclear weapons development.

o **October 18, 2015, Adoption Day**: 90 days after the passage of the UN Security

Curbing Iran's nuclear program

Once the International Atomic Energy Agency verifies that Iran has complied with a deal to keep it from developing nuclear weapons, crippling international sanctions will be lifted.

AREA	TERMS OF DEAL	DURATION
Uranium enrichment	The number of centrifuges at **Natanz enrichment site must be cut** from nearly 20,000 to 6,104, with only 5,060 running.	10 years
	6,104 20,000	
	The underground enrichment facility at **Fordo must stop enriching uranium** and instead make medical and research isotopes as a physics and technology center.	15 years
	Iran **must not build** any new enrichment facilities.	15 years
Nuclear stockpile	Iran's cache of enriched uranium **must be cut** to 300 kilograms.	15 years
	A reactor in **Arak must be rebuilt** so it could not produce weapons-grade plutonium, with spent fuel shipped out of Iran.	Lifetime of reactor
"Breakout" time	The time that Iran could take to enrich enough uranium for a nuclear bomb **must be extended to at least one year** from the current estimate of two to three months.	At least 10 years
	1 year	
	3 months	
Inspections and monitoring	Monitoring **must be available** at every stage of nuclear program. Iran **must grant access to facilities** based on recommendations of an arbitration panel controlled by the U.S. and its allies.	At least 15 years
Economic sanctions	U.S. and European Union **sanctions will be lifted** on oil, financial and other industries once the IAEA determines Iran is	Pending Iranian compliance

Council Resolution endorsing the deal (July 20, 2015). Adoption day triggers Iran and the P5+1 to take steps to meet the commitments to fully implement the JCPOA.

o **January 16, 2016, Implementation Day**: the IAEA certifies that Iran has taken the key steps to restrict its nuclear program and has put in place increased monitoring. The IAEA's report on implementation day triggers U.S., EU, and UN sanctions relief.

o **October 2023, Transition Day**: Eight years after adoption day (or the IAEA reaching its broader conclusion on Iran's nuclear program, whichever is sooner). Transition day triggers the UN to lift missile restrictions, Iran to seek ratification of its additional protocol, the EU to terminate all remaining nuclear sanctions, United States to remove certain entities from the sanctioned list, and the United States to seek legislative termination of certain sanctions.

o **October 2025, Termination Day**: Ten years after adoption day. Termination day terminates Resolution 2231 and the Security Council closes Iran's nuclear file.

What did Iran agree to?

o **Nuclear restrictions**: Iran agreed not to produce either the highly enriched uranium or the plutonium that could be used in a nuclear weapon. It also took steps to ensure that its **Fordow, Natanz**, and **Arak** facilities pursued only civilian work, including medical and industrial research.

The accord limits the numbers and types of centrifuges Iran can operate, the level of its enrichment, as well as the size of its stockpile of enriched uranium.

(***Note:** Mined uranium has less than 1 percent of the uranium-235 isotope used in fission reactions, and centrifuges increase that isotope's concentration. Uranium enriched to 5 percent is used in nuclear power plants, and at 20 percent it can be used in research reactors or for medical purposes. High-enriched uranium, at some 90 percent, is used in nuclear weapons.*)

o **Monitoring and verification**: Iran agreed to eventually implement a protocol that would allow inspectors from the International Atomic Energy Agency (IAEA), the United Nations' nuclear watchdog, access to its nuclear facilities and potentially to undeclared sites. Inspections are intended to guard against the possibility that Iran could develop nuclear arms in secret, as it has allegedly attempted before.

The IAEA has issued quarterly reports to its board of governors and the UN Security Council on Iran's implementation of its nuclear commitments.

A body known as the **Joint Commission**, which includes representatives of all the negotiating parties, monitors implementation of the agreement and resolves disputes that may arise.

What did the other signatories agree to?

o **Sanctions relief:** The EU, United Nations, and United States all committed to lifting their nuclear-related sanctions on Iran. However, many other U.S. sanctions on Iran, some dating back to the 1979 hostage crisis, remained in effect. They cover matters such as Iran's ballistic missile program, support for terrorist groups, and human rights abuses. Though the United States committed to lifting its sanctions on oil exports, it kept restrictions on financial transactions, which have deterred international trade with Iran.

o **Weapons embargo:** The parties agreed to lift an existing UN ban on Iran's transfer of conventional weapons and ballistic missiles after five years if the IAEA certifies that Iran is only engaged in civilian nuclear activity.

How is the Iran deal enforced?

o If any signatory suspects Iran is violating the deal, the UN Security Council may vote on whether to continue sanctions relief. This "snapback" mechanism remains in effect for ten years, after which the UN sanctions are set to be permanently removed.

o In April 2020, the United States announced its intention to snap back sanctions. The other P5 members objected to the move, saying the United States could not unilaterally implement the mechanism because it left the nuclear deal in 2018.

o Recently under US President, Joe Biden, the US has again shown the desire to return to JCPOA.

FIFTH BIMSTEC SUMMIT

Recent

Addressing the ministerial of the BIMSTEC (Bay of Bengal Initiative for Multi–Sectoral Technical and Economic Cooperation), the External Affairs Minister urged closer cooperation and connectivity among the members.

The meeting was held before the leaders' meeting when the BIMSTEC Charter will be adopted.

*Later, the BIMSTEC Charter was signed and adopted during the **Fifth BIMSTEC Summit held in virtual format in Colombo, Sri Lanka**, on 30 March 2022.*

About BIMSTEC

o BIMSTEC is an inter-regional grouping that seeks to foster regional and economic cooperation among nations in the littoral and adjacent areas of the Bay of Bengal — India, Thailand, Myanmar, Nepal, Bangladesh, Sri Lanka and Bhutan.

o It is headquartered in Dhaka.

o The BIMSTEC region is home to roughly **22 per cent of the global population** with a combined GDP of over **$4.4 trillion**.

o Due to setbacks to the South Asian Association of Regional Cooperation (SAARC), particularly when its 2016 summit scheduled to be held in Pakistan was suspended after member countries declined to participate, BIMSTEC has emerged as the
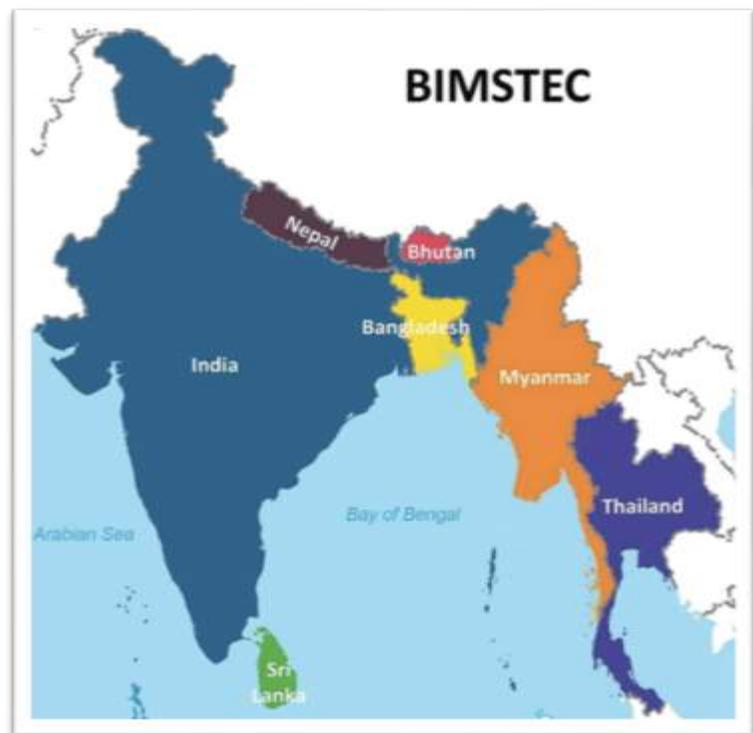
"preferred platform" for regional cooperation in South Asia.

BIMSTEC formation & relevance in Indo-Pacific region

o BIMSTEC is an economic bloc that came into being in **June 1997** through the **Bangkok Declaration**.
o It aims to **accelerate economic growth and social progress** among members across multiple sectors — trade, technology, energy, transport, tourism and fisheries, agriculture, public health, poverty alleviation, counter-terrorism, environment, culture, people to people contact and climate change.
o The grouping holds **annual meetings** hosted by member states based **on alphabetical rotation**.
o Sri Lanka is the host nation this time.
o Initially, the economic bloc was formed with four countries with the acronym '**BIST-EC' (Bangladesh, India, Sri Lanka and Thailand Economic Cooperation)**. With the entrance of Myanmar in 1997, the grouping was renamed 'BIMST-EC' (Bangladesh, India, Myanmar, Sri Lanka and Thailand Economic Cooperation).
o Finally, with the entrance of Nepal and Bhutan at the 6th Ministerial Meeting in 2004, the grouping was named Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC).
o Some **key agreements** signed by BIMSTEC members include a convention for combating terrorism, transnational organised crime and illicit drug trafficking. However, this awaits ratification.
o Another is the **BIMSTEC Grid Interconnection**, signed during the BIMSTEC Summit in Kathmandu, Nepal, in 2018, which aims to promote an optimal power transmission in the BIMSTEC region.
o In the mid-2010s, BIMSTEC gained attention as India-Pakistan tensions began to hamstrung SAARC.

How BIMSTEC is important for India?

o BIMSTEC allows India to pursue three core policies-

▪ **Neighbourhood First –** primacy to the country's immediate periphery;
▪ **Act East** – connect India with Southeast Asia; and
▪ Economic development of India's north-eastern states – by linking them to the Bay of Bengal region via Bangladesh and Myanmar.
▪ Allows India to counter China's creeping influence in countries around the Bay of Bengal due to the spread of its One Belt and One Road Initiative.

Challenges faced by BIMSTEC

o **Neglect by member states**: It seems that India has used BIMSTEC only when it fails to work through SAARC in the regional setting and other major members like Thailand and Myanmar are focused more towards ASEAN than BIMSTEC.

o **Inconsistent Meetings**: BIMSTEC planned to hold summits every two years, ministerial meetings every year, but only five summits till now.
o **Broad Focus Areas**: The focus of BIMSTEC is very wide, including 14 areas of cooperation like connectivity, public health, agriculture etc. It is suggested that BIMSTEC should remain committed to small focus areas and cooperate in them efficiently.
o **No FTA**: BIMSTEC FTA not yet concluded.
o **Bilateral Issues between Member Nations:** Bangladesh is facing one of the worst refugee crisis of Rohingyas from Myanmar who are fleeing prosecution in the state of Rakhine in Myanmar. There is a border conflict between Myanmar and Thailand.
o **BCIM:** The formation of another sub-regional initiative, the Bangladesh-China-India-Myanmar (BCIM) Forum, with the proactive membership of China, has created more doubts about the exclusive potential of BIMSTEC.

CHINA, AFGHANISTAN AND PAKISTAN

Recent

China said it would deepen three-way cooperation with Afghanistan and Pakistan as the Foreign Ministers of the three countries met in eastern China.

China's Economic Interest in Afghanistan

o **Reserves of Lithium**: Afghanistan is probably home to what may be the world's largest reserves of lithium.

▪ Lithium is the **key ingredient of the large-capacity lithium-ion batteries** that are widely used in electric vehicles and the renewable energy industry.
▪ **China dominates Lithium-Ion Battery productio**n worldwide and it may seek long-term a contract with the Taliban to develop Afghanistan's massive untapped lithium reserves in return for mining rights and ownership arrangements.

o **Mineral Deposits:** Afghanistan is sitting on mineral deposits estimated to be worth up to $3 trillion.
Afghanistan is **rich in several resources** such as gold, oil, bauxite, rare earths, chromium, copper, natural gas, uranium, coal, iron ore, lead, zinc, gemstones, talc, sulphur, travertine, gypsum and marble.
o **China's Belt and Road Initiative:** China's strategic Belt-and-Road Initiative (BRI) could get more reach if it is able to extend the initiative from Pakistan to Afghanistan, with a **Peshawar-to-Kabul motorway.**
o This would create a much shorter land route for faster and convenient access to markets in the Middle East for Chinese goods.

China's Security Interest in Afghanistan

o According to the UN security council, the **East Turkestan Islamic Movement (ETIM)** had roots in Afghanistan as it received support from the Taliban and Al Qaeda in the 2000s.

o ETIM is an Uyghur founded in Western China with the aim to establish an independent state called East Turkestan in the place of Xinjiang.

o Thus, ETIM poses a direct threat to China's national security and territorial integrity.

o China is worried that Afghanistan could become a potential haven for the Uyghur extremist group, which could retaliate against the widespread repression of Uyghurs.

Impact of China-Taliban Engagement on India

o A new route of BRI through Kabul would render India's reluctance to join BRI less consequential.

o With China-Taliban engagement, there can be formation of a **new regional geopolitical axis between China-Pakistan-Taliban,** which may go against the interests of India.

o China's **stronghold in Afghanistan will also hamper connectivity projects to Central Asia via Afghanistan**. For example, Chabahar Port, International North South Transport Corridor (INSTC), TAPI Pipeline.

Implications of Afghanistan joining CPEC on India

o **Filling the Void:** In Afghanistan, China is trying to fill the vacuum created after the US forces left Afghanistan economically and gets its Belt and Road (BRI) initiatives going.

o **Undermining Chabahar Port:** The foremost concern with Afghanistan joining CPEC is that India is apprehensive of its investment in Chabahar port in Iran.

o **India is wary of undermining the India–Iran–Afghanistan trilateral** that gives Afghanistan access to sea via Chabahar port.

o **Weakening of India's Economic Influence:** Attempts to extend CPEC to Afghanistan may undermine India's position as economic, security and strategic partner of Afghanistan.

▪ India has been the biggest regional donor to Afghanistan committing more than US$2 billion for the developmental work that includes construction of roads, power plants, dams, parliament building, rural development, education, infrastructure and much more.

▪ With Extension of CPEC, China will play a leading role in Afghanistan overpowering India's economic influence in Afghanistan.

o **Terrorism and Strategic Concerns:** Given India's limited strategic depth in Afghanistan, China is in better position to leverage its strategic advantages in Afghanistan.

▪ Further, Afghanistan's inclusion in the CPEC will definitely help in the economic development, but it will also help Pakistan gain the strategic advantage and upper hand in Afghanistan at the cost of India.

▪ In this situation, Pakistan may augment use of terrorism against India.

o **Control of Strategic Air Base:** Besides its issues with the CPEC, India will be wary of the likelihood that China may try to take over the Bagram air force base in Afghanistan.

The Bagram airport is the biggest airport and technically well-equipped as the Americans kept it for their use till the end, instead of the Kabul airport.

o **Exploitation of Rare Earth Minerals:** With the extension of CPEC, China is also looking to exploit Afghanistan's rich minerals and highly lucrative rare-earth mines.

o Rare-earth metals, which are key components for a host of advanced electronic technologies and hi-tech missile guidance systems.

Way Forward

o For the success of CPEC in Afghanistan and to a large extent in Pakistan's troublesome territories, it becomes imperative for China to stabilise the security situation in the region.
o Improved infrastructure and security situation in Afghanistan may help India to conduct its economic and trade activities in a smoother way.
o However, given the hostility of China, Pakistan and Taliban against India, Afghanistan joining CPEC will certainly be a strategic advantage for China and a loss for India.

INDIA-NEPAL RELATIONS

Recent

Nepal's Prime Minister Sher Bahadur Deuba met Prime Minister of India and inaugurated the Himalayan nation's only railway link with India in a summit meant to deepen relations.

This is Prime Minister Deuba's fifth visit to India in his capacity as the Prime Minister and the first bilateral visit after taking charge as the Prime Minister in July 2021.

Actions

o Launched the **35-km cross-border railway line linking Jaynagar in Bihar to Kurtha in Nepal**. This is the first broad-gauge passenger rail link between the two sides and it will be extended to Bardibas in Nepal under a project supported by an Indian grant

o India also handed over the **Solu Corridor, a 90-km, 132 kV power transmission line** built for ₹200 crore under an Indian line of credit. The line will help bring electricity to several remote districts in northeastern Nepal by connecting them to the country's national grid.
o Also launched India's **RuPay card in Nepal**. The domestic variant of the RuPay card will now work at 1,400 point-of-sale machines in Nepal, and the move is expected to facilitate bilateral tourist flows. Nepal is the fourth country, after Bhutan, Singapore and the UAE, where RuPay is live.
o Nepal signed a framework agreement to join the **India-led International Solar Alliance**, and the two sides signed three more pacts – a memorandum of understanding (MoU) on enhancing

technical cooperation in the railways sector, and two agreements between Indian Oil Corporation and Nepal Oil Corporation for the supply of petroleum products for five years and for sharing of technical expertise.

Historical Ties

o Nepal is an important neighbour of India and occupies special significance in its foreign policy because of the geographic, historical, cultural and economic linkages/ties that span centuries.
o India and Nepal share **similar ties in terms of Hinduism and Buddhism** with Buddha's birthplace Lumbini located in present day Nepal.
o The two countries not only share an open border and unhindered movement of people, but they also have close bonds through marriages and familial ties, popularly known as Roti-Beti ka Rishta.
o The **India-Nepal Treaty of Peace and Friendship of 1950** forms the bedrock of the special relations that exist between India and Nepal.

Treaty of Peace and Friendship of 1950

o The treaty talks about **reciprocal treatment of Indian and Nepali citizens** in the two countries, in residence, property, business and movement.
o It also establishes national treatment for both Indian and Nepalese businesses (i.e. once imported, foreign goods would be treated no differently than domestic goods).
o It also gives Nepal access to weaponry from India.

Importance of Nepal

o Nepal shares border with **5 Indian states**- Uttarakhand, Uttar Pradesh, West Bengal, Sikkim and Bihar. Hence an important point of cultural and economic exchange.
o Importance for India can be studied from two different angles: a) their strategic importance for India's national security; and b) their place in India's role perception in international politics.
o Nepal is right in the **middle of India's 'Himalayan frontiers'**, and along with Bhutan it acts as northern 'borderland' flanks and **acts as buffer states against any possible aggression from China.**
o Rivers originating in Nepal **feed the perennial river systems of India** in terms of ecology and hydropower potential.
o Many Hindu and Buddhist religious sites are in Nepal making it an important pilgrim site for large number of Indians.

Areas of Cooperation

Trade and economy
o India is Nepal's largest trade partner and the largest source of foreign investments, besides providing transit for almost the entire third country trade of Nepal.
o Indian firms engage in manufacturing, services (banking, insurance, dry port), power sector and tourism industries etc.

Development Assistance

o Government of India provides development assistance to Nepal, focusing on creation of infrastructure at the grass-root level.

o The areas assistance include infrastructure, health, water resources, and education and rural & community development.

Defence Cooperation

o Bilateral defence cooperation includes assistance to Nepalese Army in its modernization through provision of equipment and training.

o The Gorkha Regiments of the Indian Army are raised partly by recruitment from hill districts of Nepal.

o India from 2011, every year undertakes joint military exercise with Nepal known as Surya Kiran.

Cultural

o There have been initiatives to promote people-to-people contacts in the area of art & culture, academics and media with different local bodies of Nepal.

o India has signed three sister-city agreements for twinning of Kathmandu-Varanasi, Lumbini-Bodhgaya and Janakpur-Ayodhya.

Multilateral Partnership

o India and Nepal shares multiple multilateral forums such as BBIN (Bangladesh, Bhutan, India, and Nepal), BIMSTEC (Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation) NAM, and SAARC (South Asian Association for Regional Cooperation) etc.

Challenges

o Internal Security is a major concern for India; Indo-Nepal border is virtually open and lightly policed which is exploited by terrorist outfits and insurgent groups from North Eastern part of India e.g. supply of trained cadres, fake Indian currency.

o Overtime trust deficit has widened between India-Nepal because of the Indian reputation for delaying implementation of various projects.

o There is anti-India feeling among certain ethnic groups in Nepal which emanates from the perception that India indulges too much in Nepal and tinkers with their political sovereignty.

o The establishment of diplomatic relations between Nepal and China and its growing influence in Nepal has resulted in declining traditional leverage of India in Nepal.

ECONOMIC SANCTIONS ON RUSSIA

o Sanctions are penalties imposed by one country on another, to stop it acting aggressively, or breaking international law.

What are the latest sanctions to be imposed?

o **US's latest sanctions are**:

- economic measures **to ban new investment** in Russia
- severe **sanctions on two Russian financial institutions** - Alfa Bank and Sberbank
- sanctions on **critical major state-owned enterprises**
- sanctions on Russian government officials and their family members, including President Putin's adult children and relatives of Foreign Minister Sergei Lavrov

o Meanwhile the **UK has imposed sanctions on Russia's largest bank, Sberbank**, and committed to ending all imports of Russian coal and oil by the end of 2022.

- major Russian banks excluded from the UK financial system
- all Russian banks have had their assets frozen
- the Russian state and major companies cannot raise finance or borrow money in the UK
- a limit placed on deposits Russians can make at UK banks

o The EU also said it would target 70% of the Russian banking market and key state-owned firms.

What else has been sanctioned?

Military goods and mercenaries

o A ban on the export of dual-use goods - items with both a civilian and military purpose, such as vehicle parts - has been imposed by the UK, EU and US.

o The UK is also imposing **sanctions on Russia's Wagner Group** - a private military firm thought to function as an arms-length unit of the Russian military.

Flights

o All Russian flights have been banned from US, UK, EU and Canadian airspace.

o The UK has also banned private jets chartered by Russians.

Luxury goods

o The UK and the EU have banned the export of luxury goods to Russia - including vehicles, high-end fashion and art.

o The UK has also imposed a 35% tax on some imports from Russia, including vodka.

Targeting individuals

o The US, EU and UK have together sanctioned more than 1,000 Russian individuals and businesses, including wealthy business leaders - so-called oligarchs - who are considered close to the Kremlin.

o One high-profile oligarch sanctioned by the UK is **Chelsea FC owner Roman Abramovich.**

o Assets belonging to Russian President Vladimir Putin and his foreign minister Sergei Lavrov are also being frozen in the US, EU, UK and Canada.

o The UK has also stopped the sale of "golden visas", which allowed wealthy Russians to get British residency rights.

o The hunt for superyachts of sanctioned Russians

Oil and gas

o The US is banning all Russian oil and gas imports and the UK will phase out Russian oil imports by the end of 2022.

o The EU, which gets a quarter of its oil and 40% of its gas from Russia, says it will
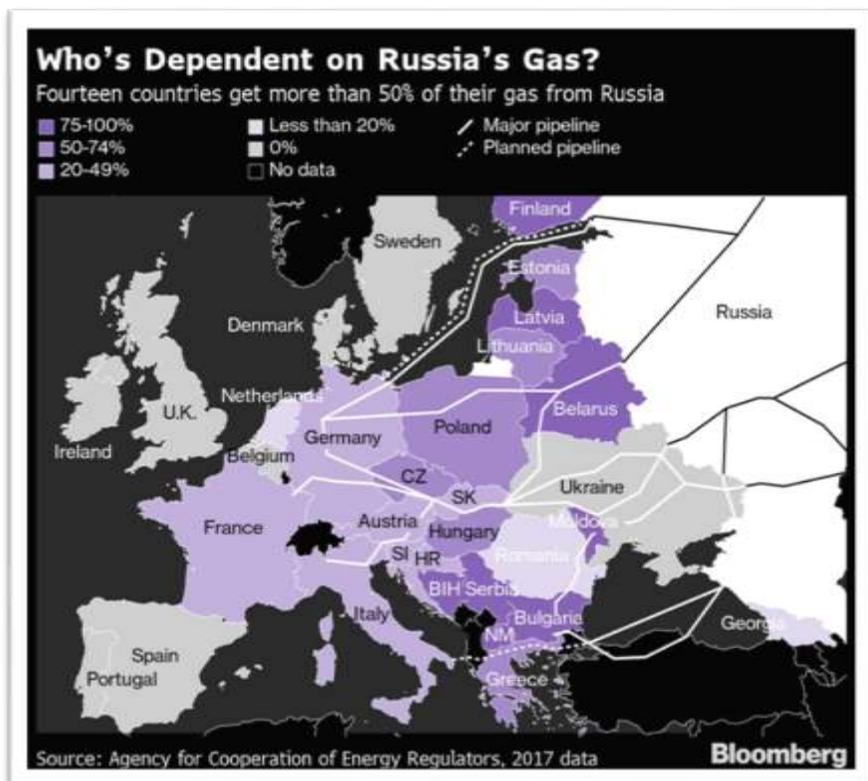
switch to alternative supplies and make Europe independent from Russian energy "well before 2030".

o Germany has put on hold permission for the Nord Stream 2 gas pipeline from Russia to open.

Financial measures

o Western countries have frozen the assets of Russia's central bank, to stop it using its **$630bn (£470bn) of foreign currency reserves**.

o This caused the value of the rouble to slump by 22%, which has pushed up the price of imported goods and led to a 14% rise in Russia's rate of inflation.

o The rouble has since recovered - but largely due to measures to prop up the currency.

o Buyers of Russian **gas have to pay in roubles** and Moscow now requires Russian firms to convert most of their foreign profits into roubles.

o The **United States has barred Russia from making debt payments** using the $600m it holds in US banks, making it harder for Russia to repay its international loans.

o **Credit ratings agency S&P has now declared Russia to be in "selective default"** (this means a debtor has defaulted on a specific obligation but not its entire debt) after it attempted to make interest payments on roubles for two dollar-denominated bonds.

o The agency said this was because investors were unlikely to be able to convert the roubles into dollars.

o Some Russian banks are being **removed from the international financial messaging system Swift**, which is used to transfer money across borders. This will delay payments to Russia for energy exports.

What are companies doing?

o A growing number of international companies including McDonald's, Coca-Cola and Starbucks have suspended trading in Russia.

o After facing fierce criticism for continuing to operate in Russia, Nestle has withdrawn some of its brands including KitKat and Nesquik, but will still sell "essential foods".

o However, a number of other Western brands including Marks and Spencer, Burger King, and hotel groups Marriott and Accor say they can't pull out from Russia because their businesses there operate under complex franchise deals.

NORD STREAM 2

Nord Stream

o The **Baltic Sea** pipeline is set to **double supplies of cheap natural gas from Russia to Germany**, which the European Union's top economy says is needed to help it transition from coal and nuclear energy.

o But the €10 billion ($12 billion) project has for years been dogged by delays and drawn fierce criticism from Germany's eastern EU allies like Poland and from the U.S.

o Critics say the project will increase Europe's dependence on Russian gas and Ukraine has described it as a **"geopolitical weapon".**

What is Nord Stream 2?

o It's a 1,230-kilometer (764-mile) pipeline that doubles the capacity of the existing undersea route from Russian gas fields to Europe -- the original Nord Stream -- which opened in 2011 and can handle 55 billion cubic meters per year.

o **Russia's Gazprom PJSC owns the project operator**, with other investors contributing half of the 9.5 billion-euro ($10.8 billion) cost.

o Nord Stream 2 could help Europe secure a relatively low-cost supply of gas at a time when the continent's own producers are reducing output.

o It's also part of **Gazprom's decades-long effort to diversify its exports to Europe as the region moves away from nuclear and coal.**

o Before the first Nord Stream opened, Russia was sending about **two-thirds of its gas exports to Europe through pipelines in Ukraine.**

o The two countries' troubled relations since the Soviet Union collapsed left Gazprom exposed to disruptions: For 13 days in 2009 a pricing dispute halted gas flows through Ukraine. Since then, ties between Russia and Ukraine have worsened, culminating in the Ukrainian popular revolt that kicked out the country's pro-Russian president and led to **Russia seizing the Crimean Peninsula in 2014**.

o In late 2021 there were increasing numbers of Russian troops and military equipment deployed near Ukraine's border, sparking U.S. warnings of invasion plans. Russian President Vladimir Putin has denied any intention to invade.
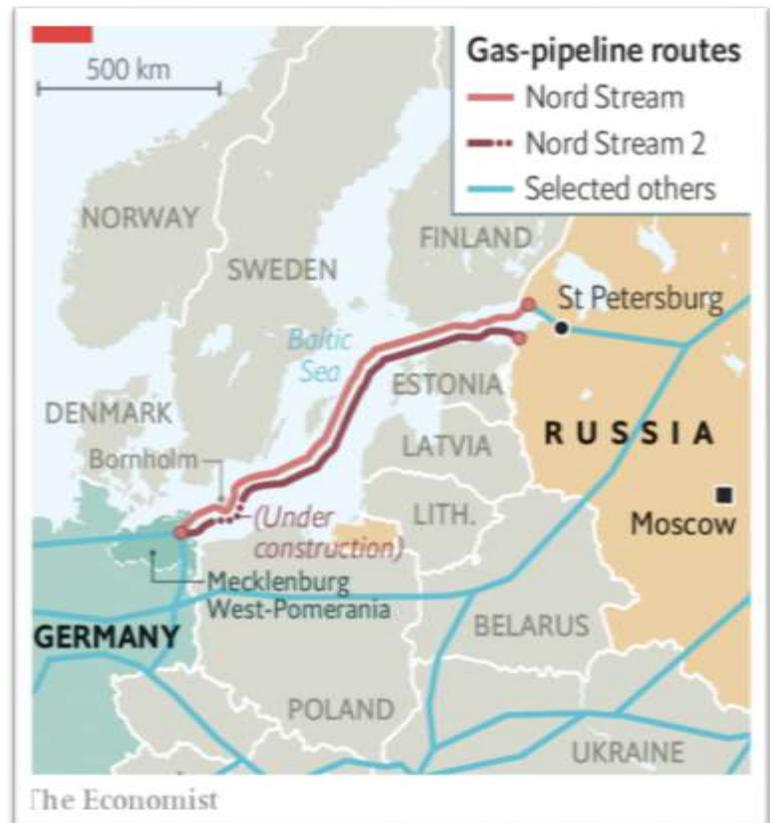
MCC GRANT TO NEPAL

Recent

*Nepal's House of Representatives has ratified 500 million US Dollar grant assistance-**Millennium Challenge Corporation (MCC) pact** along with the "interpretative declaration".*

Millenium Challenge Corporation

o The MCC was founded in 2004 as a US foreign aid agency that acts in accordance with governments that have demonstrated a commitment to good governance, economic freedom, and citizen investment.

o It was envisioned as an organisation that would follow the **Paris Declaration on Aid Effectiveness' key principles.**
o MCC works with countries that have been identified as **being eligible for assistance to develop programmes** that are based on MCC's purpose of decreasing poverty via economic growth.
o MCC's results framework, which is based on the fourth and fifth principles of the Paris Declaration, Results and Mutual Accountability.
o It provides a **framework for applying the agency's rigorous methods for projecting, tracking, and evaluating the effects of its programmes.**
o MCC uses this framework to address basic questions about aid effectiveness.

Investments made by MCC

o Compact and threshold programmes are the two types of programmes in which MCC invests.
o **Compacts are large, five-year grants** implemented by an accountable entity established by each partner nation.
o **Thresholds are smaller funds** focusing on policy and institutional transformation in selected countries implemented by MCC.

The background of the project

o MCC's partnership with Nepal began in 2011, when the country requested assistance.
o MCC first chose Nepal for a smaller threshold grant, and subsequently in December 2014, for a larger compact.
o Three years later, in September 2017, the MCC-Nepal compact was signed, with the US committing $500 million and Nepal committing $130 million.
o Nepal is expected to generate an electricity infrastructure with 400kVA transmission lines through the MCC project, which will be used to distribute power both domestically and to India.
o Furthermore, the MCC's implementation could boost the Nepalese economy by increasing employment possibilities and increasing per capita income.

America vs China: Objections around MCC

o The MCC agreement has created a political divide in Nepal.
o The compact has been criticised in Nepal as endangering the country's sovereignty, integrity, and constitutional autonomy.
o The claim that the MCC agreement supersedes the national charter and shall prevail over Nepal's domestic laws.
o Many have interpreted this to suggest that the compact replaces the constitution, compromising Nepal's sovereignty.
o The **MCC's inclusion in the Indo-Pacific Strategy (IPS) is considered problematic for Nepal**, as the majority of the country's political class views the US strategy as anti-China.

India's role in the ongoing political crisis in Nepal

o Few claim that the electricity generated by MCC will be only for export to India and will not be for the local public. As a result, it will not benefit the local economy directly.

o Nepal's hydroelectric generation potential is huge, with over 6,000 large and small rivers.

o However, through a series of barrages and dams, India has control over the majority of Nepal's major rivers. Nationalists in the Himalayan country have strongly objected to this.

o In Nepal, where India is still perceived as a meddling big brother, its goal of strengthening India's military capabilities through this agreement to counter China's was questioned.

INSTABILITY IN LIBYA

o Clouds of uncertainty continue to hang over **Libya's transition towards democracy**. The Libyan Parliament, based in Tobruk and dominated by the eastern region, chose **Fathi Bashagha** as Prime Minister in February 2022.

o Subsequently, **Bashagha's new government was approved by the Parliament** on 1 March 2022.

o However, the **incumbent and interim United Nations-backed regime led by Abdul Hamid Dbeibah's reluctance to hand over power** to Bashagha is ripping Libya apart.

o The United Nations (UN) voiced concern over Bashagha's appointment and held that Bashagha "fell short of expected standards".

o In the midst of this deepening political crisis, **Libya's biggest oil field, the El-Shahara field**, which produces 290,000 barrels a day, halted oil production and the protesters threatened to keep key export terminal closed.

o These dramatic developments are taking place **when the oil prices are mounting as a result of the Russian invasion of Ukraine** and the consequent imposition of sanctions against Russia.

o **Libya has the biggest oil reserves in Africa**, and the issues related to energy production have often led to armed conflicts in Libya. At this juncture, the rivalry between Bashagha and Dbeibah to seize governmental power can cause political instability and chaos in Libya.

o To surmount this impasse, a modicum of political stability can be established before conducting presidential elections.

o In fact, 2.5 million voters of Libya were about to cast their votes but the presidential elections that were scheduled on 24 December, 2021, were postponed. Even if Dbeibah plans to hold the elections by June 2022, his own position itself is under challenge with the arrival of Bashagha.

o The inability of the various contending forces to stabilise Libyan polity and society has pushed Libya virtually into a state of quagmire.

o Moreover, **Libya is strategically located in the eastern Mediterranean with rich reserves of oil and natural gas.** Therefore, politically stable, democratic, and unified Libya can bring internal order and inspire investor confidence. However, establishing a stable polity in Libya is a distant dream. To place chaotic realities of the past decade in perspective, it would be worth reflecting on the internal and external dimensions of the civil war in Libya and unmask the quality of leadership offered by contending candidates for Libya's Presidential office.

Political background of instability

o After the US-led **North Atlantic Treaty Organisation (NATO) forces** toppled the **Muammar Gaddafi regime** in October 2011, Libya's fractious polity has often been characterised by centrifugal tendencies.

o The elections for **General National Congress (GNC) of 2012** as well as the **House of Representatives elections of 2014, marked by a low voter turnout of 18 percent**, failed to bring about a stable democratic polity in Libya.

o Consequently, **political circumstances had pushed Libya into the throes of civil war** since mid-2014, which essentially represented a contest between the two parties.

o On the one hand, in western Libya the **UN-backed Government of National Unity (GNU)** that was led by Fayez al-Sarraj (2016-2021) had established full control over Tripoli, with firm support from Turkey and Qatar.

o While, on the other hand, **General Khalifa Haftar who led the Libyan National Army (LNA)** after 2015 had established his control over the eastern and southern parts of Libya. The LNA was functioning with Tobruk as its capital.

o Haftar also has had **support from external powers such as Russia, Egypt, France, Saudi Arabia, and the United Arab Emirates (UAE).** Treating resource-rich Libya as a gateway to Africa, each one of these external powers was pursuing its own policy towards Libya by taking into cognisance factors related to geopolitics involving maritime and energy security. The civil war also interrupted the oil supply and weakened the Libyan economy. Such interruptions in oil supply also affected all the parties involved in the conflict.

o Irrespective of the UN efforts to manage transition, without agreement over general rules amongst the competent bodies such as the Election Commission, Parliament's Election Committee, and the fragmented judiciary, it became difficult to determine the list of eligible candidates in the presidential elections in Libya.

o Taking advantage of the ambiguity in the rules, the political leaders began to conveniently pursue their personal interests by flouting the rules. The manner in which political leadership in Libya has been muddling through the entire process of framing the Constitution and conducting elections certainly deserves a critical scrutiny.

♦ BBIN-MOTOR VEHICLES AGREEMENT

Recent

*India, Bangladesh and Nepal finalised an enabling memorandum of understanding (MoU) for implementing the long-gestating **Bangladesh-Bhutan-India-Nepal (BBIN)** Motor Vehicles Agreement (MVA) that is aimed at boosting regional trade and connectivity.*

About BBIN MVA

o Bangladesh, Bhutan, India and Nepal (BBIN) had signed the Motor Vehicles Agreement (MVA) in **2015 at Thimphu, Bhutan.**

o To provide **seamless people-to-people contact** and enhance economic interaction by facilitating cross border movement of people and goods.

o As per the agreement, member countries would allow vehicles registered in the other countries to enter their territory under certain terms and conditions.

o Customs and tariffs will be decided by the respective countries and these would be finalized at bilateral and trilateral forums.

o **Assistance:** Asian Development Bank (ADB) has been providing technical, advisory, and financial support to the BBIN MVA initiative as part of its assistance to the **South Asia Subregional Economic Cooperation (SASEC) program.**

Bhutan's point of view

o Bhutan PM has said that the country's top priority is to remain "carbon-negative". That's why it would not be possible for them to join the MVA as there are **serious sustainability and environmental concerns.**

o Bhutan is the **only country in the world that is carbon negative**, which **means it produces more oxygen than it consumes.**

About the recent meeting

o The trilateral Memorandum of Understanding (MoU) would be similar to the four-nation pact signed in 2015, but would be effective only for movement of vehicles **within the three nations without any obligation for Bhutan.**

o They also agreed to work fast on two separate protocols, which, once finalized, would govern the movement of passenger and cargo vehicles among the three nations.

o Bhutan also sent its officials to take part in the meeting hosted by India **but as observers**.

o The delegations from **Bangladesh, India and Nepal agreed upon the need to expeditiously finalize the Passenger and Cargo Protocols for implementation of the BBIN MVA** (Motor Vehicle Agreement).

GENEVA CONVENTIONS

o The Geneva Conventions and their Additional Protocols are international treaties that contain the most important **rules limiting the barbarity of war**.
o They **protect people who do not take part in the fighting** (civilians, medics, aid workers) and **those who can no longer fight** (wounded, sick and shipwrecked troops, prisoners of war).

The 1949 Geneva Conventions

First Geneva Convention

o The first Geneva Convention **protects wounded and sick soldiers on land** during war.
o This Convention represents the fourth updated version of the Geneva Convention on the wounded and sick following those adopted in 1864, 1906 and 1929. It contains 64 articles.
o These provide protection for the wounded and sick, but also for **medical and religious personnel, medical units and medical transports.**
o The Convention also recognizes the distinctive emblems. It has two annexes containing a draft agreement relating to hospital zones and a model identity card for medical and religious personnel.

Second Geneva Convention

o The second Geneva Convention protects **wounded, sick and shipwrecked military personnel** at sea during war.
o This Convention replaced **Hague Convention of 1907** for the Adaptation to Maritime Warfare of the Principles of the Geneva Convention. It closely follows the provisions of the first Geneva Convention in structure and content. It has 63 articles specifically applicable to war at sea. For example, it protects hospital ships. It has one annex containing a model identity card for medical and religious personnel.

Third Geneva Convention

o The third Geneva Convention applies to prisoners of war.
o This Convention replaced the **Prisoners of War Convention of 1929**. It contains 143 articles whereas the 1929 Convention had only 97.
o The categories of persons entitled to prisoner of war status were broadened in accordance with Conventions I and II. **The conditions and places of captivity were more precisely defined, particularly with regard to the labour of prisoners of war, their financial resources, the relief they receive, and the judicial proceedings instituted against them**. The Convention establishes the principle that prisoners of war shall be released and repatriated without delay after the cessation of active hostilities.
o The Convention has five annexes containing various model regulations and identity and other cards.

Fourth Geneva Convention

o The fourth Geneva Convention affords protection to civilians, including in occupied territory.
o The Geneva Conventions, which were adopted before 1949. were concerned with combatants only, not with civilians.

o The events of World War II showed the disastrous consequences of the absence of a convention for the protection of civilians in wartime.

o The **Convention adopted in 1949** takes account of the experiences of World War II. It is composed of 159 articles. It contains a short section concerning the general protection of populations against certain consequences of war, without addressing the conduct of hostilities, as such, which was later examined in the Additional Protocols of 1977.

o The bulk of the Convention deals with the status and treatment of protected persons, distinguishing between the situation of foreigners on the territory of one of the parties to the conflict and that of civilians in occupied territory. It spells out the obligations of the Occupying Power vis-à-vis the civilian population and contains detailed provisions on humanitarian relief for populations in occupied territory. It also contains a specific regime for the treatment of civilian internees. It has three annexes containing a model agreement on hospital and safety zones, model regulations on humanitarian relief and model cards.

Common Article 3

o Article 3, **common to the four Geneva Conventions**, marked a breakthrough, as it covered, for the first time, **situations of non-international armed conflicts**. These types of conflicts vary greatly.

o They include **traditional civil wars, internal armed conflicts** that spill over into other States or internal conflicts in which third States or a multinational force intervenes alongside the government.

o Common **Article 3 establishes fundamental rules** from which no derogation is permitted. It is like a mini-Convention within the Conventions as it contains the essential rules of the Geneva Conventions in a condensed format and makes them applicable to conflicts not of an international character:

o It requires humane treatment for all persons in enemy hands, without any adverse distinction. It specifically prohibits murder, mutilation, torture, cruel, humiliating and degrading treatment, the taking of hostages and unfair trial.

- It requires that the wounded, sick and shipwrecked be collected and cared for.
- It grants the ICRC the right to offer its services to the parties to the conflict.
- It calls on the parties to the conflict to bring all or parts of the Geneva Conventions into force through so-called special agreements.
- It recognizes that the application of these rules does not affect the legal status of the parties to the conflict.
- Given that most armed conflicts today are non-international, applying Common Article 3 is of the utmost importance. Its full respect is required.

States Party to the Geneva Conventions

o The Geneva Conventions entered into force on **21 October 1950**.

o Ratification grew steadily through the decades: 74 States ratified the Conventions during the 1950s, 48 States did so during the 1960s, 20 States signed on during the 1970s, and another 20 States did

so during the 1980s. Twenty-six countries ratified the Conventions in the early 1990s, largely in the aftermath of the break-up of the Soviet Union, Czechoslovakia and the former Yugoslavia.

o Seven new ratifications since 2000 have brought the total number of States Party to 194, making the Geneva Conventions universally applicable.

The Additional Protocols to the Geneva Conventions

o In the two decades that followed the adoption of the Geneva Conventions, the world witnessed an increase in the number of non-international armed conflicts and wars of national liberation. In response, two Protocols Additional to the four 1949 Geneva Conventions were adopted in **1977.**

o They strengthen the protection of victims of international (Protocol I) and non-international (Protocol II) armed conflicts and place limits on the way wars are fought. Protocol II was the first-ever international treaty devoted exclusively to situations of non-international armed conflicts.

o In **2005, a third Additional Protocol** was adopted creating an additional emblem, the **Red Crystal,** which has the same international status as the Red Cross and Red Crescent emblems.

- Additional Protocol I - international conflicts
- Additional Protocol II - non-international conflicts
- Additional Protocol III - additional distinctive emblem.

o The **first Additional Protocol of 1977** supplements the rules applying to international armed conflicts contained in the four Geneva Conventions. It imposes restrictions on the conduct of hostilities; for example, it prohibits attacks against civilians and civilian objects and restricts the means and methods of warfare.

o The **second Additional Protocol of 1977** supplements Article 3 which is common to the four Geneva Conventions and is the sole provision applicable to non-international armed conflicts.

o The **third Additional Protocol** provides for an additional emblem in the form of a red crystal. Since 1 January 2007, it has been possible to use this emblem as an alternative to the red cross or red crescent – the emblems recognised by the Geneva Conventions for identifying persons and objects entitled to special protection.

✦ ORGANISATION OF ISLAMIC COOPERATION (OIC)

Recent

India hopes that Organisation of Islamic Cooperation will not encourage elements that promote terrorism targeting India.

o The Organisation of Islamic Cooperation (OIC) has membership of **57 states spread over four continents**. The Organization is the collective voice of the Muslim world. It endeavours to safeguard and protect the interests of the Muslim world in the spirit of promoting international peace and harmony among various people of the world.

o The Organization was established upon a decision of the historical summit which took place in **Rabat, Kingdom of Morocco** on 25th September 1969 following the criminal arson of Al-Aqsa Mosque in occupied Jerusalem.

o The membership includes Afghanistan, Algeria, Bahrain, Bangladesh, Benin, Brunei, Burkina Faso, Cameroon, Chad, Comoros, Djibouti, Egypt, Gabon, The Gambia, Guinea, Guinea-Bissau, Indonesia,

Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Malaysia, Maldives, Mali, Mauritania, Morocco, Niger, Oman, Pakistan, the Palestinian Authority (PA), Qatar, Saudi Arabia, Senegal, Sierra Leone, Somalia, Sudan, Syria (suspended), Tunisia, Turkey, Uganda, United Arab Emirates, and Yemen.

o In 1970, the first ever meeting of Islamic Conference of Foreign Minister (ICFM) was held in Jeddah which decided to establish a **permanent secretariat in Jeddah** headed by the organization's secretary general. Dr. Yousef Ahmed Al-Othaimeen is the 11th Secretary General who assumed the office in November 2016.

o The first OIC Charter was adopted by the 3rd ICFM Session held in 1972. The Charter laid down the objectives and principles of the organization and fundamental purposes to strengthen the solidarity and cooperation among the Member States. Over the last 40 years, the membership has grown from its founding members of 30 to 57 states.

o The Charter was amended to keep pace with the developments that have unraveled across the world. The present Charter of the OIC was adopted by the Eleventh Islamic Summit held in Dakar in 2008 to become the pillar of the OIC future Islamic action in line with the requirements of the 21st century.

o The Organization has the singular honor to galvanize the Ummah into a unified body and have actively represented the Muslims by espousing all causes close to the hearts of over 1.5 billion Muslims of the world. The Organization has consultative and cooperative relations with the UN and other inter-governmental organizations to protect the vital interests of the Muslims and to work for the settlement of conflicts and disputes involving Member States. In safeguarding the true values of Islam and the Muslims, the organization has taken various steps to remove misperceptions and has strongly advocated elimination of discrimination against Muslims in all forms and manifestations.

o The Member States of the OIC face many challenges in the 21st century and to address those challenges, the **Third Extraordinary Session of the Islamic Summit** held in Makkah in December 2005, laid down the blue print called the **Ten-Year Program of Action**. It successfully concluded with the close of 2015. A successor programme for the next decade (2016-2025) has since then been adopted.

o The new programme **OIC-2025 is anchored in the provisions of the OIC Charter and focuses on 18 priority areas** with 107 goals. The priority areas include issues of Peace and Security, Palestine and Al-Quds, Poverty Alleviation, Counter-terrorism, Investment and Finance, Food Security, Science and Technology, Climate Change and Sustainability, Moderation, Culture and Interfaith Harmony, Empowerment of Women, Joint Islamic Humanitarian Action, Human Rights and Good Governance, among others.

o Among the OIC's **key bodies**: the Islamic Summit, the Council of Foreign Ministers (CFM), the General Secretariat, in addition to the Al-Quds Committee and three permanent committees concerned with science and technology, economy and trade, and information and culture. There are also specialized organs under the banner of the OIC including the Islamic Development Bank and the Islamic Educational, Scientific and Cultural Organization, as well as subsidiary and affiliate organs that play a vital role in boosting cooperation in various fields among the OIC member states.

LEAGUE OF ARAB STATES (LAS)

Recent

Foreign Secretary, Harsh Shringla spoke at a United Nations Security Council (UNSC) meeting on cooperation between the United Nations (UN) and the League of Arab States (LAS).

About

o The **Arab League**, formally the **League of Arab States**, is a regional organization in the Arab world, which is located in Northern Africa, Western Africa, Eastern Africa, and Western Asia.

o The **Arab League was formed in Cairo** on 22 March 1945 initially with six members: Egypt, Iraq, Transjordan (renamed Jordan in 1949), Lebanon, Saudi Arabia, and Syria.

o Currently, the League has 22 members, but Syria's participation has been suspended since November 2011.

o **Administrative centre: Cairo, Egypt**.

Purpose

o The Arab League's purpose is to **seek close cooperation among its members** on matters of common interest—specifically, economics, communication, culture, nationality, social welfare, and health; to strengthen ties, improve communication, and promote common interest among Arabic-speaking nations.

o The Pact of the League of Arab States, the organization's founding document, identifies the mission of the League as follows:

o "The purpose of the League is to draw closer the relations between member States and coordinate their political activities with the aim of realizing a close collaboration between them, to safeguard their independence and sovereignty, and to consider in a general way the affairs and interests of the Arab countries."

Why Is Turkey not in the Arab League?

o Turkey has expressed interest in having an observer status in the League but has been refused for several reasons, most noticeably opposition from Iraq (whose Kurdish citizens Turkey has frequently battled with) and Syria (the latter still claims Turkey's Hatay Province).

o The League has also condemned Turkey's military interventions in Libya and other countries.

Is the Arab League a Military Alliance?

o The Arab League as an organization is **not a military alliance** per se, though from its 1945 founding its members agreed to cooperate in military affairs and coordinate military defence.

o At the 2007 summit, the Leaders decided to reactivate their joint defence and establish a peacekeeping force to deploy in South Lebanon, Darfur, Iraq, and other hot spots.

o At a **2015 summit in Egypt**, member states agreed in principle to **form a joint voluntary military force.**

ABEL PRIZE

Recent

*The Norwegian Academy of Science and Letters has awarded the Abel prize for the year 2022 to American Mathematician **Dennis Parnell Sullivan** for developing a new way of understanding rational homotopy theory, a subfield of algebraic topology*

About Topology

o Topology is a field of mathematics which was born in the nineteenth century and has to do with **properties of surfaces that do not change when they are deformed**.

o Topology studies properties of spaces that are invariant under any continuous deformation. It is sometimes **called "rubber-sheet geometry"** because the objects can be stretched and contracted like rubber, but cannot be broken.

o For example, a square can be deformed into a circle without breaking it, but a **figure 8 cannot. Hence a square is topologically equivalent to a circle, but different from a figure 8.**

o Similarly, surfaces of a doughnut and a coffee mug with one handle are topologically equivalent, however the surface of a sphere and a coffee mug are not equivalent.

o Topology is used in **many branches of mathematics**, such as differentiable equations, dynamical systems, knot theory, and Riemann surfaces in complex analysis.

o It is also used in string theory in physics, and for describing the space-time structure of universe.

The Abel Prize: International Prize of Mathematics

o The Abel Prize is named after **Niels Henrik Abel**, Norway's greatest mathematician throughout the times.

o Abel left lasting marks on the mathematical world.

o His mathematics has served as a base for a number of major technological breakthroughs, there amongst the development of the internet.

o The Abel Prize was established by the **Norwegian Parliament (The Storting) in 2002**, on the occasion the 200-year anniversary of his birth.

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

o The Abel Committee, consisting of five leading mathematicians from throughout the world, holds the task of appraising nominated candidates and recommends a worthy winner.

LOCATIONS IN NEWS

SOLOMON ISLANDS

o Solomon Islands in the South Pacific has reached a deal with China which outlines an unprecedented level of security cooperation. This is the first deal of its kind for Beijing in the region.

o The confirmation of the move has raised alarms in US and Australia, which have extensive stakes in the South Pacific.

o The document is titled **'Framework Agreement between the Government of the People's Republic of China and the Government of Solomon Islands on Security Cooperation'**

o The document explicitly enables Beijing to send its "police, armed police, military personnel and other law enforcement and armed forces" to the islands on the latter government's request, or if the former sees that the safety of its projects and personnel in the islands are at risk.

o The document also provides for China's naval vessels to utilise the islands for logistics support. There have been speculations in the wake of this revelation that China might be building its next overseas naval base in Solomon Islands after Djibouti, which was also incidentally referred to as a logistics support base.

DONBAS REPUBLICS

o The two self-proclaimed rebel republics of Donetsk and Luhansk, whose independence Russia recognised, are situated in the rust belt in eastern Ukraine, and escaped Kyiv's control in 2014.

About the region

o Donetsk, surrounded by slag heaps, is the main city in the mining basin of Donbas.

o Once named **Stalino,** it is a gritty industrial hub dominated by mining.

o It is also one of the main steel-producing centres of Ukraine.

o It has two million inhabitants.

o **Luhansk, formerly Voroshilovgrad**, is also an industrial city of 1.5 million inhabitants.

o They are grouped in the basin, on the border with Russia on the northern banks of the Black Sea — **home to vast coal reserves**.

GEOGRAPHY AND ENVIRONMENT
(Ecology; Biodiversity and Disaster Management)

☩INDIAN ANTARCTIC BILL, 2022

Recent

The Indian Antarctic Bill, 2022 was introduced in Lok Sabha. The Bill seeks to give effect to the ***Antarctic Treaty****, the Convention on the Conservation of Antarctic Marine Living Resources, and the Protocol on Environmental Protection to the Antarctic Treaty.*

o It also seeks to protect the Antarctic environment and regulate activities in the region. Key features of the Bill include:

Applicability

o The provisions of the Bill will apply to any person, vessel or aircraft that is a part of an Indian expedition to Antarctica under a permit issued under the Bill.
o Areas comprising of Antarctica include:

▪ the continent of Antarctica, including its ice-shelves, and all areas of the continental shelf adjacent to it, and
▪ all islands (including their ice-shelves), seas, and air space south of 60°S latitude.

Central committee

o The central government will establish a Committee on Antarctic Governance and Environmental Protection.
o The Committee will be chaired by the **Secretary of the Ministry of Earth Sciences**.
o 10 members, not below the rank of joint secretary, will be nominated from various Ministries and organisations such as defence, external affairs, National Centre for Polar and Ocean Research, and National Security Council Secretariat.
o In addition, two experts from Antarctic environment and geo-political fields will be nominated by the central government.
o The functions of the Committee include:

▪ granting permits for various activities,
▪ implementing and ensuring compliance of relevant international laws for protection of Antarctic environment,
▪ obtaining and reviewing relevant information provided by parties to the Treaty, Convention, and Protocol, and
▪ negotiating fees/charges with other parties for activities in Antarctica.

Need for permit

A permit by the Committee or written authorisation from another party to the Protocol (other than India) will be required for various activities such as:

- an Indian expedition to enter or remain in Antarctica,
- a person to enter or remain in an Indian station in Antarctica,
- a vessel or aircraft registered in India to enter or remain in Antarctica,
- a person or vessel to drill, dredge or excavate for mineral resources, or collect samples of mineral resources,
- activities which may harm native species, and
- waste disposal by a person, vessel or aircraft in Antarctica.

o Before a permit is granted by the Committee, the applicant has to carry out an environmental impact assessment of the proposed activities.

o Moreover, a permit must not be granted unless a waste management plan has been prepared for the expedition by the Committee.

Prohibited activities

The Bill prohibits certain activities in Antarctica including:

- nuclear explosion or disposal of radioactive wastes,
- introduction of non-sterile soil, and
- discharge of garbage, plastic or other substance into the sea which is harmful to the marine environment.

Offences and penalties

The Bill specifies penalties for contravention of its provisions.

o For instance, conducting a nuclear explosion in Antarctica will be punishable with an imprisonment of 20 years which may extend to life imprisonment and a fine of at least Rs 50 crore.

o Drilling for mineral resources or introducing non-native animals or plants in Antarctica without a permit will be punishable with imprisonment up to seven years and a fine between Rs 10 lakh and Rs 50 lakh.

o The central government **may notify one or more Sessions Courts to be the Designated Court** under the Bill and specify its territorial jurisdiction to try offences punishable under the Bill.

ANTARCTIC TREATY

o The Antarctic Treaty was a treaty signed on **December 1, 1959**, during the Cold War by 12 countries that had vested interests in Antarctica.

o Those 12 countries were Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the United Kingdom, the United States, and the Soviet Union.

o It entered into force in **1961.**

o The treaty provides a **framework for international relations concerning Antarctica**. It regulates an entire continent with no local population.

Overview of Antarctic Treaty

o The article aims to define the Antarctic Treaty and other relevant information related to it, such as the year it was signed, the 12 original countries that initially signed it, its expansion, function, purpose. It also shines a light on the issue of mining surrounding the continent as natural resources like oil deplete increasingly.

o It also briefly explains the Antarctic Treaty within the context of India, when India got involved, and what research investigations the country is focusing on.

Purpose of Antarctic Treaty

o The Antarctic Treaty of 1961 was written to ensure that Antarctica remained free of any international sovereignty or dispute by permitting its use strictly for humanitarian purposes only.

o The treaty states that Antarctica should be **used only for the benefit of mankind**.

o The main stipulations of this treaty were the **ban of military activities and intervention, nuclear trials, and the disposal of radioactive waste**.

o The treaty, however, **favours scientific investigations and data exchange** as long as they are conducted without violating any rules based on international order concerning Antarctica.

o All territorial **claims or sovereignty are suspended**. Though signed in 1959, the treaty came into effect on 23rd June 1961.

60TH ANNIVERSARY OF THE ANTARCTIC TREATY'S ENTERING INTO FORCE

ANTARCTIC TREATY

Total Number of Countries involved: 54

Signed: December 1, 1959
Entered into force: June 23, 1961

IMPORTANT POINTS OF THE ANTARCTIC TREATY

Military activities and weapons testing are prohibited

Complete freedom on scientific research

Free exchange of scientific plans among Treaty nations

Any territorial claims in Antarctica will be on hold

Nuclear explosions and nuclear waste disposal are banned

All stations and equipment shall be open to inspection

National laws only apply to citizens, not to areas in Antarctica

Parties shall meet periodically to discuss measures

Parties shall ensure no illegal activities are carried out

Issues to be settled by the International Court of Justice

The treaty may be modified by unanimous vote

The Treaty must be legally ratified by any nation wishing to join

REFERENCE. British Antarctic Survey (2021). The Antarctic Treaty Explained. BAS. Retrieved from https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/the-antarctic-treaty-explained/

Antarctic Treaty System

o The Antarctic Treaty System (ATS) is the governing body that regulates international relations

concerning Antarctica, the only continent without any human population in the world.
o The treaty designated Antarctica as a haven of scientific research with complete scientific autonomy and no military intervention.
o All human activities within the continent are regulated through this treaty to ensure safe and environmentally friendly visits by travellers.
o The treaty **applies to areas south of 60 degrees** south latitude, including land and ice shelves.

Conclusion
o The Antarctic Treaty was a paradigm shift and a significant step towards international relations concerning Antarctica, the continent with no human population.
o The treaty ensures that Antarctica remains free of territorial claim or sovereignty to minimise conflicts or disputes between nations.
o The treaty also ensured that the continent was demilitarised, and provisions were made for joint research and potential use.
o The ban on nuclear testing and dumping of radioactive wastes set a beautiful precedent for environmentally friendly practices. Nations are encouraged to display prudence and cooperation to prevent conflict from escalating.

INDIA AND THE ARCTIC
o The Arctic region, or the Arctic, is a geographic region spreading around the North Pole. There is no single correct definition of the region as the southern boundary varies.

Key ways to define the Arctic:
o The **Arctic Circle (66 ° 33'N) delimits the Arctic in terms of solar radiation**.
o In theory, areas north of the Arctic Circle have at least one day without daylight in the winter and at least one nightless night in the summer. In practice, this does not happen everywhere because the surface of the earth is uneven, and the light refracts in the atmosphere.
o Based on temperature, the **monthly average temperature in the Arctic is below + 10 ° C throughout the year**, even in summer.
o The forest line follows a **temperature-defined area**. The forest line is not a narrow line but a zone tens of kilometres wide between the northern coniferous forest and the tundra. In this demarcation, the Arctic is predominantly wooded tundra and glaciers.
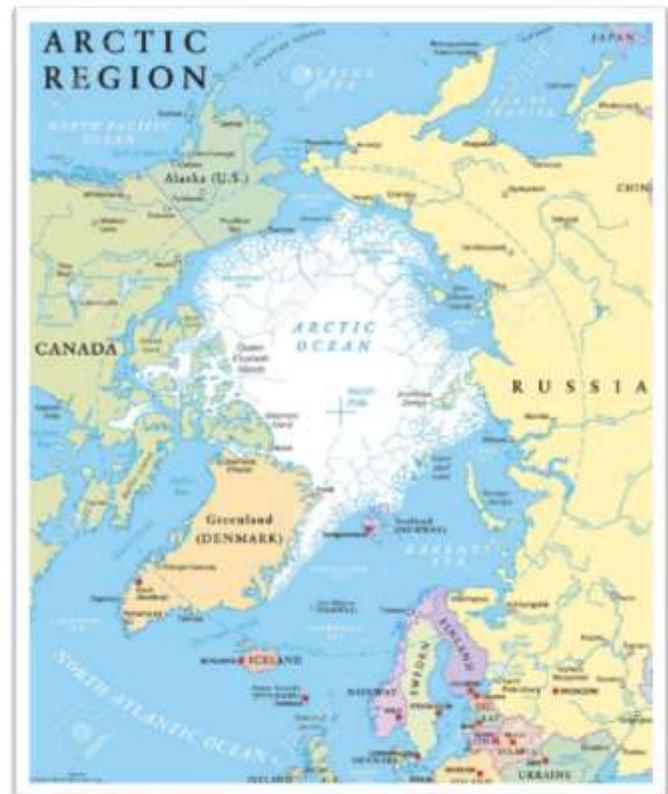
o **Permafrost increases the area of Russian Arctic** compared to the other delimitations. Permafrost is soil that stays frozen for at least two consecutive years.
o The ice cover determines the Arctic nature of marine areas.
o **Sea ice is highest in February-March** and **lowest in September**. The surface of the Arctic ice is monitored almost in real time by satellites.
o **Culturally defined**, the Arctic covers the **homelands of northern indigenous peoples**.
o **Political delimitations** vary according to how they serve, for example, the interests of states or international cooperation.
o As the climate warms, the Arctic shrinks if defined by temperature, forest line, permafrost, or ice cover. Cultural and political boundaries also vary. The Arctic Circle is the most permanent of the delimitations, although also the polar circle moves very slowly due to the variation of the Earth's axial tilt.

Interesting facts and figures about the Arctic

1. The Arctic is regarded as containing some of the last physically undisturbed marine spaces on earth.
2. Shipping (unique ships) within the Arctic Polar Code area has increased by 25% over 6 years from 2013-2019. A majority of these vessels are fishing vessels.
3. The central feature of the Arctic is the Arctic Ocean. The **Arctic Ocean has the widest continental shelf of all the oceans.**
4. The Arctic sea ice has **diminished from 6,1 million sq.km. in 1999 to 4,3 million sq.km. in 2019.**
5. Boreal forests of the Arctic cover about 17% of the global land area, representing the largest natural forests in the world.
6. Together with the Antarctic, the Arctic contains the largest freshwater resource on Earth.
7. **Seven of the world's ten largest wilderness** areas are located in the Arctic region.
8. The total catch of wild fish in the Arctic mounted to 10% of the world catch .
9. The Arctic as an area is essentially an ocean surrounded by the land north of the Arctic circle (66032' N) that covers a region of 33 million Km2 , larger than Africa or Asia.
10. The United States Geological Survey (USGS) estimates that 30 per cent of the world's undiscovered natural gas is in the Arctic, mostly on the continental shelves beneath the Arctic Ocean.
11. More than 70 per cent of the undiscovered oil resources are estimated to occur in northern Alaska, the Amerasian Basin, the eastern side of Greenland, the eastern Barents Sea region, and the Davis Strait of Greenland and Canada.
12. An estimated 84 per cent of the undiscovered oil and gas in the Arctic occurs offshore.
13. The Arctic region is characterized by some of the largest continuous intact ecosystems on the planet, but is facing increasingly larger threat.

What is the Background?

o India's engagement with the Arctic began when it signed the **Svalbard Treaty in 1920** in Paris between Norway, the US, Denmark, France, Italy, Japan, the Netherlands, Great Britain, and Ireland, and the British overseas Dominions and Sweden concerning Spitsbergen.

o Spitsbergen is the **largest island of the Svalbard archipelago**, part of Norway, in the Arctic Ocean.

o Spitsbergen is the only permanently inhabited part of Svalbard. More than 50% of the land is covered in ice year-round. Together with the glaciers, it is mountains and fjords that define the landscape.

o Ever since then, India has been closely monitoring all the developments in the Arctic region.

o India initiated its **Arctic research program in 2007** with a focus on climate change in the region.

o The objectives included **studying teleconnections between Arctic climate and Indian monsoon**, to characterise sea ice in the Arctic using satellite data, to estimate the effect on global warming.

o India also focuses on conducting research on the dynamics and mass budget of Arctic glaciers and sea-level changes, carrying out an assessment of the flora and fauna of the Arctic.

Six Central Pillars of India's Arctic Policy

o Science and research.
o Environmental protection.
o Economic and human development.
o Transportation and connectivity.
o Governance and international cooperation.
o National capacity building.

Objectives

o It aims to strengthen national capabilities and competencies in science and exploration, climate and environmental protection, maritime and economic cooperation with the Arctic region.

o It seeks to strengthen institutional and human resource capacities within the government and academic, research and business institutions through inter-ministerial coordination in pursuit of India's interests in the Arctic.

o It seeks to **enhance understanding of the impact of climate change in the Arctic region on India's climate,** economic and energy security.

o It aims to promote better analysis, prediction and coordinated policymaking on the implications of ice melting in the Arctic on India's economic, military and strategic interests related to global shipping routes, energy security and exploitation of mineral wealth.

o It seeks to study the linkages between polar regions and the Himalayas and deepen the cooperation between India and the countries of the Arctic region under various Arctic forums, drawing expertise from scientific and traditional knowledge.

o The policy also seeks to increase India's participation in the Arctic Council and improve understanding of the complex governance structures in the Arctic, relevant international laws and geopolitics of the region.

Relevance of Arctic for India

o The Arctic region is significant due to the shipping routes that run through it.
o According to an analysis published by the Manohar Parrikar Institute for Defence Studies and Analyses, the adverse effects of the Arctic are not just impacting the availability of mineral and hydrocarbon resources, but also transforming global shipping routes.
o According to the Ministry of External Affairs, India can play a constructive role in securing a stable Arctic.
o The region holds immense geopolitical importance as the Arctic is projected to be ice-free by 2050 and world powers making a beeline to exploit the region rich in natural resources.

✚HEAT FROM DATACENTRES

Recent

Microsoft has partnered with Fortum, *a Finnish energy company to heat homes, services and businesses in Finland with sustainable waste heat from a new datacentre region that Microsoft has planned to build in the Helsinki metropolitan area in Finland.*

*Microsoft claims the waste heat recycling concept from the datacentre region to be the world's largest scheme to recycle waste heat from data centres. The joint project takes place at the intersection of **two megatrends: digitalisation and energy transition**.*

Datacentre

o A datacentre is a **physical facility that organisations use to store their critical applications and data, process data and disseminate them to users**.
o It is designed based on a network of computing and storage resources that enables delivery of shared applications and data.
o The **key components** of a datacentre are routers, switches, firewalls, storage systems, servers, and application-delivery controllers.
o Many large datacentres are located in dedicated buildings. Smaller datacentres may be situated in specially designed rooms within buildings constructed to serve multiple functions.
o Since datacentres consume large amounts of energy, it's important to ensure the physical structures that house them are well-designed and insulated to optimise temperature controls and energy efficiency.
o The temperatures recorded in the hot aisles of a datacentre hover **between 80 and 115 degrees Fahrenheit,** according to Lifeline datacentres, a provider of datacentre facilities and services.
o Global cybersecurity firm Kaspersky estimates over 75% of a datacentre's electricity becomes waste heat.
o It noted that in winter, a datacentre can provide heating up to 85 degrees Fahrenheit, similar to a gas boiler, with better energy efficiency than a heat pump in a new house.

What's the scale of their carbon footprint?

o   On a global level, datacentres consume **around 200 terawatt-hours (TWh) of electricity**, which is **more than 1% of the world's total electricity**.

o   They **contribute to 0.3% of all global CO2 emissions**, according to the International Energy Agency.

o   Datacentre energy usage in some countries could increase to 15% to 30% of their total domestic electricity consumption by the end of the decade, according to predictive models by Eric Masanet and Nuoa Lei of Northwestern University.

o   Ireland's energy regulator says datacentres could use almost 30% of the country's electricity by 2027, endangering climate goals.

What is Microsoft's plan to cut carbon emission in Finland?

o   According to Microsoft, the recycled waste heat, along with other carbon reduction measures, can help the city of Espoo and its neighbouring communities to reach their CO2 emission reduction targets. It can also help decommission Fortum's last coal-fired heat unit in the city.

o   The heat recycling system can **provide clean heat to homes, businesses and public buildings in Helsinki, and can reduce up to 400,000 tons of CO2 emissions annuall**y, according to estimates by Fortum.

o   The company highlighted that once the new data centre region's waste heat capture is in operation, a total of about 60% of the area's heating will be generated by climate-friendly waste heat. Of this, 40% results from the datacentre region and the rest from other waste heat sources like purified waste water.

o   Fortum will capture the excess heat generated by the new datacentre region and transfer the clean heat from the server cooling process to homes, services and business premises that are connected to the district heating system.

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

o   The new generation of district heating is based on replacing fossil fuels with flexible solutions like renewable electricity, heat pumps and waste heat utilisation. Artificial intelligence will help optimise operations of the entire system.

Which other countries recycle waste heat from datacentres?

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

o   Datacentres **thrive in cold climates**.

o   Their location in **cold climates helps to cut down on the need to cool server rooms**.

o   Cold weather is also an asset as technology companies shift to selling their heat which doesn't have a lot of demand in hot weather.

Which other companies are doing this?

o **Facebook** is putting its waste heat to use heating nearby homes in Odense, Denmark.
o **Apple** is building a datacentre in Denmark and plans to run it with renewable energy and use waste heat to warm up nearby office buildings.
o **Fast fashion retailer H&M** has been distributing waste heat to nearby homes in Denmark since 2013 and has plans to build a new, 1 MW datacentre that will be capable of heating up to 2,500 apartments at full load.
o An **IBM datacentre** in Switzerland is heating a nearby community pool.
o In Canada, communications company **Quebecor** donates its heat to the editorial office of a local newspaper.

OLIVE RIDLEY AND ARRIBADA

Recent

*About 2.45 lakh Olive Ridley sea turtles crawled ashore on **the Nasi-II beach of the Gahirmatha Marine Sanctuary** along the Odisha coast for laying eggs, marking one of the largest opening day arrivals of turtles at the site.*

Olive Ridley Turtles

o The Olive Ridley Sea Turtle (Lepidochelys olivacea), also known as the **Pacific ridley sea turtle**, is a medium-sized species of sea turtle **found in warm and tropical waters**, primarily in the Pacific and Indian Oceans.
o In the Indian Ocean, the majority of olive ridleys nest in two or three large groups at **Rushikulya rookery near Gahirmatha** in Odisha.
o The coast of Odisha in India is the largest mass nesting site for the olive ridley, followed by the coasts of Mexico and Costa Rica.
o The species is listed as **Vulnerable** in the **IUCN Red List, Appendix 1 in CITES, and Schedule 1 in Wildlife Protection Act, 1972.**
o The Odisha's Gahirmatha Marine Sanctuary is known as the world's largest rookery (colony of breeding animals) of sea turtles.
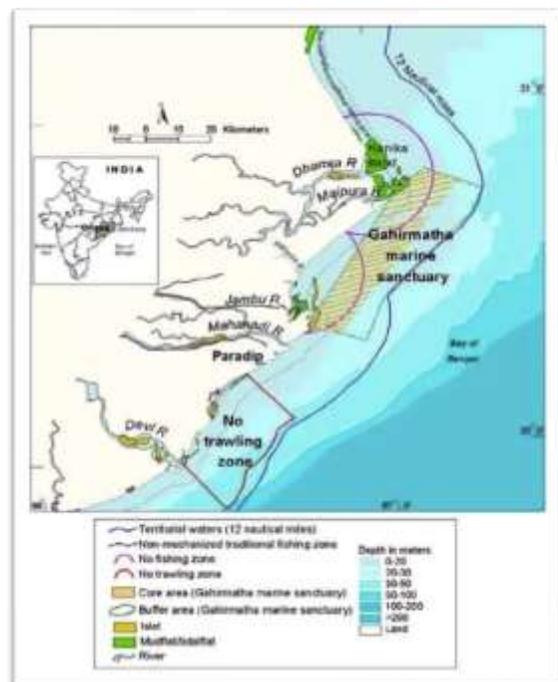
Arribada (Mass Nesting):

o They are best known for their unique mass nesting called Arribada, where **thousands of females come together on the same beach to lay eggs.**
o They lay their eggs over a period of five to seven days in conical nests about one and a half feet deep which they dig with their hind flippers.

Threats

o Marine pollution and waste
o Human Consumption: They are extensively poached for their meat, shell and leather, and eggs.
o Plastic Garbage: An ever-increasing debris of plastics, fishing nets, discarded nets, polythene and other garbage dumped by tourists and fishing workers.
o Fishing Trawlers: Overexploitation of marine resources by use of trawlers often violates the rule to not fish 20 kilometres within a marine sanctuary.
o There were injury marks on many dead turtles indicating they could have been trapped under trawls or gill nets.

Gahirmatha Marine Sanctuary

o Gahirmatha is the **mass nesting spot in Indian Ocean region** and the only turtle sanctuary in Odisha.
o It is the world's **largest nesting beach of Olive Ridley Sea Turtles**.
o Gahirmatha was declared a turtle sanctuary in 1997 by the Odisha government after considering its ecological importance and as part of efforts to save the sea turtles.
o **Gahirmatha Marine Sanctuary** is one of the three parts of the Bhitarkanika National Park. The other two includes the area of Bhitarkanika National Park and the Bhitarkanika Wildlife Sanctuary.

REINTRODUCTION OF CHEETAH

Context

o The **Wildlife Institute of India at Dehradun** had prepared a ₹260-crore cheetah re-introduction project seven years ago.
o India has plans to reintroduce cheetahs at the **Kuno National Park in Sheopur** and **Morena districts of Madhya Pradesh's Gwalior-Chambal region.**
o This could be the **world's first inter-continental cheetah translocation project**.
o The mighty Asiatic Cheetah which was once the pride of India's jungles, was pushed to the brink by threats like habitat destruction and overhunting and was ultimately **declared extinct in 1952**.
o In **2020, the Supreme Court** provided a glimmer of hope when it gave a go-ahead to central government's ambitious plan for bringing in the cheetah from **Namibia, Africa**.
o The sites that have been suggested for the relocation are the **Kuno-Palpur Wildlife Sanctuary in Madhya Pradesh**, the **Velavadar National Park in Gujarat** and the **Tal Chapar sanctuary in**

Rajasthan.

o However, conservationists and scientists are not happy with the move for a variety of reasons. Experts fear that the **lack of enough area and prey base** for the African cheetahs in Indian habitats might pose challenges. Here are some acute concerns:

Genetic differences in cheetah subspecies

o One of the major issues that has concerned experts is the genetic differences in the cheetah subspecies. The cheetahs coming to India will not be from the Asiatic subspecies, but instead from the African subspecies.

o The African cheetahs not only look different, but are also **used to a different habitat and prey base**. In comparison, the Asiatic cheetah is smaller, thinner and slightly paler in colour than its African counterpart.

o Introducing a different subspecies to new ecological setting carries its own set of biodiversity issues and disease risks.

Not enough space to accommodate cheetahs

o A cheetah requires a substantial amount of space. Many activists have said that the proposed habitats in India are not large enough to accommodate cheetahs, and do not have enough prey to sustain the big cats.

o More so, the African cheetah which is used to preying on certain species in its native settings will again have to learn to hunt in India. Whether they can adapt to the Indian conditions still remains a big concern.

Might take focus away from species that need attention

o With renewed focus on bringing the cheetah back to India, experts fear that it might take away the focus away from other species that need more attention. One such example is the great Indian bustard, which stands on the brink of extinction in the country today.

o It is ironic that we want to shift our whole conservation focus on a species that went extinct in the 1950s rather than those which are on the verge of going extinct in a few years.

o Even the 2013, SC judgement noted that it is a necessity to find alternative homes for highly endangered species like the great Indian bustard, Bengal florican, Asiatic lion, wild buffalo, dugong and the Manipur brow-antlered deer.

Risk of diseases in new setting

o A Down to Earth report explains that when animals are being introduced to a new landscape, there is a risk of disease spread to both the individual animals and to the wildlife species which inhabit the site chosen for reintroduction.

o The stress of unfamiliar or unnatural conditions of confinement, especially during the translocation process might trigger diseases in cheetahs.

SCIENCE AND TECHNOLOGY

(Inventions, Innovations, Discoveries and Explorations)

➕ STEM CELL

A Cell

- o A cell is the building block of our body. It is the smallest structural and functional unit of the body.
- o There are different types of specialized cells that perform different functions.
- o Human beings are estimated to have 100 trillion cells and more than 200 different types of cells (liver cells, skin cells, muscle cells, etc).

Stem Cells
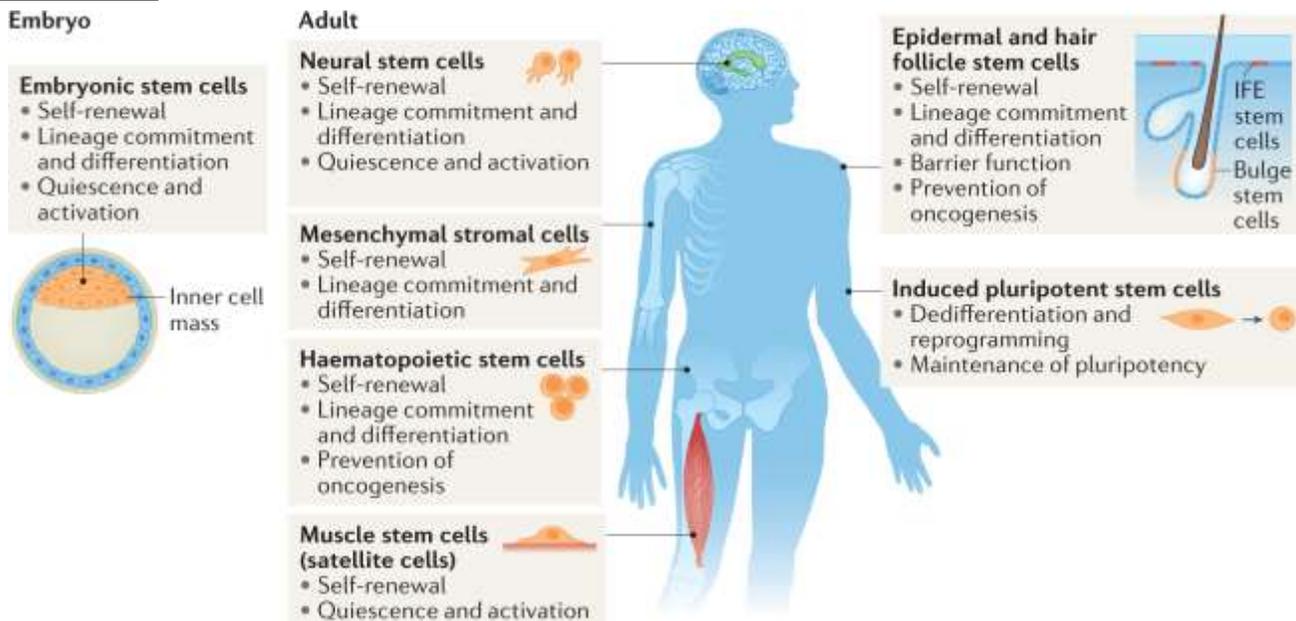
- o Special human cells that have the capability to develop into wide-ranging types of cells in the human body, from muscle cells to brain cells, are called stem cells.
- o A stem cell is an immature or unspecialized cell that can split to form similar cells.
- o Develop into different specialized cells that perform a distinct function.
- o Stem cells are classified into 2 main categories –

- ▪ **First:** Classification based on the formation of cells at different phases of human lives

There are 3 types under this classification

Embryonic stem cells:

- o These are the Stem cells that exist only during the **earliest stage of development**.

Adult stem cells
o These are the cells that can **multiply when there is a need to repair adult organs and tissues**.
o These cells are present in **almost all organs of the human body**.
o They are **multipotent** i.e. they can give rise to a limited number of mature cell types, usually corresponding to the tissues in which they reside. A most well-known example is the blood-forming (hematopoietic) stem cells from bone marrow that give rise to different blood cells in our body.
o Some tissue-specific stem cells can only give rise to one or two mature cell types and are called unipotent and bipotent, respectively. Stem cells found in the skin produce new skin cells and are an example of unipotent stem cells.

Perinatal Stem Cells
o Researchers have discovered stem cells in amniotic fluid as well as umbilical cord blood. These stem cells have the ability to change into specialized cells.
o Amniotic fluid fills the sac that surrounds and protects a developing fetus in the uterus. Researchers have identified stem cells in samples of amniotic fluid drawn from pregnant women for testing or treatment — a procedure called amniocentesis.

> ▪ **Second:** Classification based on Stem cells ability to develop into different specialized cells

Totipotent stem cells
o These Stem Cells can transform into all kinds of cells in the human body.

Pluripotent stem cells
o These Stem Cells can transform themselves into any type of cell in the human body except those kinds that are required to support and develop a fetus in the womb.

Multipotent stem cells
o These can give rise to only a few distinct types of cells.

Use of stem cells in the Medical field
o The only stem cells currently used to treat disease are **hematopoietic stem cells**. These are blood cells forming adult stem cells found in the bone marrow.
o Researchers believe that stem cells would be able to treat a multitude of ailments like

- ▪ Heart disease
- ▪ Type 1 diabetes
- ▪ Spinal cord injury
- ▪ Alzheimer's disease
- ▪ Rheumatoid Arthritis

TISSUE CULTURE

o It is the growth of tissues or cells in an **artificial medium separate from the organism**.
o This is typically facilitated via **use of a liquid, semi-solid, or solid growth media**, such as broth or agar. Tissue culture commonly refers to the culture of animal cells and tissues, with the more specific term plant tissue culture being used for plants.
o Tissue culture **means growing cells in vitro**, from tissues taken from a multicellular organism. The term tissue culture is often substituted with the word cell culture.
o After the cells are extracted from a donor organism, they are bathed in the culture medium, which helps in the revival of the cells, as they contain energy sources and important nutrients.

What is Growth Medium or Culture Medium or Nutrient Broth and What does it contain?

o A growth medium or culture medium or nutrient broth **is a solution which is freed of all microorganisms through sterilization**.
o Sterilization is achieved by applying heat under pressure for a specific time period. However, the solution contains all the microorganisms required for growth, such as algae, fungi, bacteria and protozoans.
o When the Agar is added to the medium **it solidifies.**
o Some media are made up of inorganic salts and one or more inorganic compounds. This is a chemical or synthetic defined media.
o Different types of living cells or tissue cultures can also be used as part of the media. There are types of media which are made up of an assortment of ingredients like plant or animal tissue extracts.

Tissue sample scraped from parent plant

Tissue samples placed in Agar growth medium containing nutrients and auxins

Samples develop into tiny plantlets

Plantlets planted into compost

o Some of the examples are **peptone, meat extract, yeast extract.**
o There are special-purpose media like enriched media and selective media. Enriched media consists of nutrients that help in growth and selective media consists of substances that help in the growth of selective organisms and prevent the growth of other organisms.
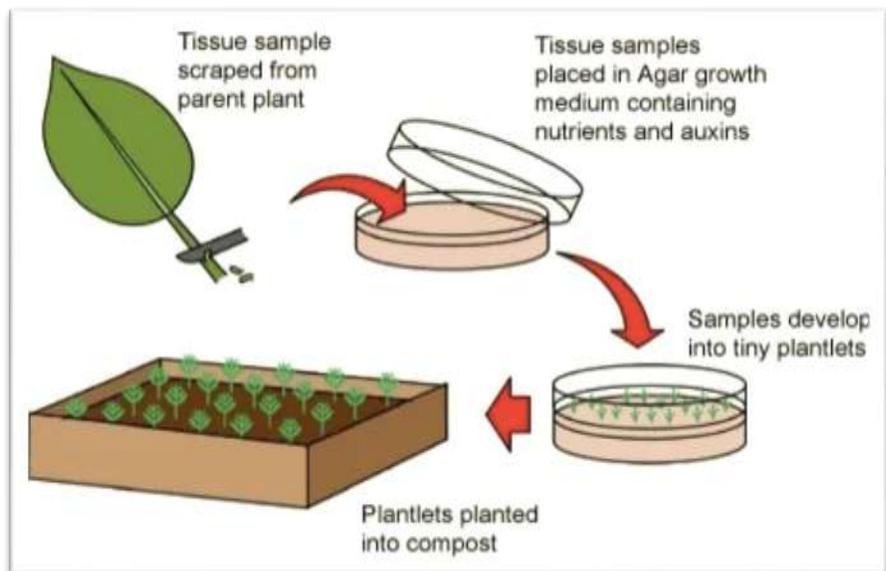
Cells can be grown in three ways

o Chemically defined synthetic medium using tissue extract.
o The culture medium of biological origin like blood serum.

> o A mixture of the culture medium of biological origin and chemically defined synthetic medium.
> o Some of the important prerequisites in a medium are it must have the essential nutrients for the cells in the right proportions and it must be suitably acid or alkaline.

How are cultures grown?

o Usually grown as a single layer
o Usually grown either on glass or a plastic surface or as a suspension in a liquid or a semi-solid medium.

How to start a culture?

o A small sample of the tissue is spread out on the medium or in the medium.
o Later the tube or plate or flask containing the culture is incubated.
o The temperature maintained should be approximately that of the tissue environment.
o Usually, at the start of the culture, single cells are used, this results in the growth of clones, which are a set of uniform biological populations.

What are Primary Cultures?

o Primary culture usually involves collecting normal cells, tissues, or organs which are collected through biopsy from a living organism.
o In this type of culture, the cells, tissues and organs under study are functioning as per its natural condition.
o There will be more mutations, change in chromosome structure and cell functions when the samples are maintained in culture for a longer duration.

What is the Hayflick limit?

o This discovery is named after American Biologist Leonard Hayflick. It is the **point at which cells will stop growing in primary culture.**

How to process the cultured cells and tissues?

o There are different ways of examining the live cultures.
o Directly through microscope
o Photographs and motion pictures were taken through the microscope.
o As per objectives of the experiment, cells, tissues and organs could either be preserved, killed or stained for any additional examination.
o Samples can also be embedded on materials like resin which can be cut into thin sections which will help in discerning further details under light or electron microscope.
o Scientists try to understand the changes in the cells in the tissue culture when they are subjected to numerous experiments by adding viruses, and any type of disease-causing organisms. Even drugs, vitamins and hormones are added to understand how cells will react.

## What are the discoveries in biological sciences due to research in Tissue culture?

o Information on cells regarding their composition and form.

o The biochemical and genetic activity of cells.

o Metabolism, nutrition and specialized function of cells

o Differences between normal cells and abnormal cells

o The effects caused on cells by physical, chemical and biological agents.

o Assisted in identifying infections, enzyme deficiencies, chromosomal activities.

o Helped in formulating test drugs and vaccines.

o Tissue culture technique helped in developing vaccines for measles, influenza, mumps, poliomyelitis and other infectious diseases. These vaccines played a crucial role in improving the health of the population, especially with regards to the measles and rubella campaign.

o Tissue culture studies have clarified the genetic causes of certain hereditary diseases.

ENZYMES

o Enzymes are proteins made from **amino acids**. It is made up of hundreds and thousands of amino acids stringed together in a very specific and unique order.

o Any chemical reaction inside a cell or any work that goes on inside a cell is the handiwork of enzymes inside the cell.

o The word enzyme was coined in 1878 by German Scientist Wilhelm Kuhne.

How do Enzymes function?

o Enzymes act as **biological catalysts (biocatalysts).**

o Catalysts accelerate chemical reactions.

o The molecules upon which enzymes may act are called **substrates,** and the enzyme converts the substrates into different molecules known as products.

o Almost all metabolic processes in the cell need enzyme catalysis in order to occur at rates fast enough to sustain life.

o Metabolic pathways depend upon enzymes to catalyze individual steps.

o Like all catalysts, enzymes increase the reaction rate by lowering its activation energy. Some enzymes can make their conversion of substrate to product occur many millions of times faster. An extreme example is orotidine 5′-phosphate decarboxylase, which allows a reaction that would otherwise take millions of years to occur in milliseconds.
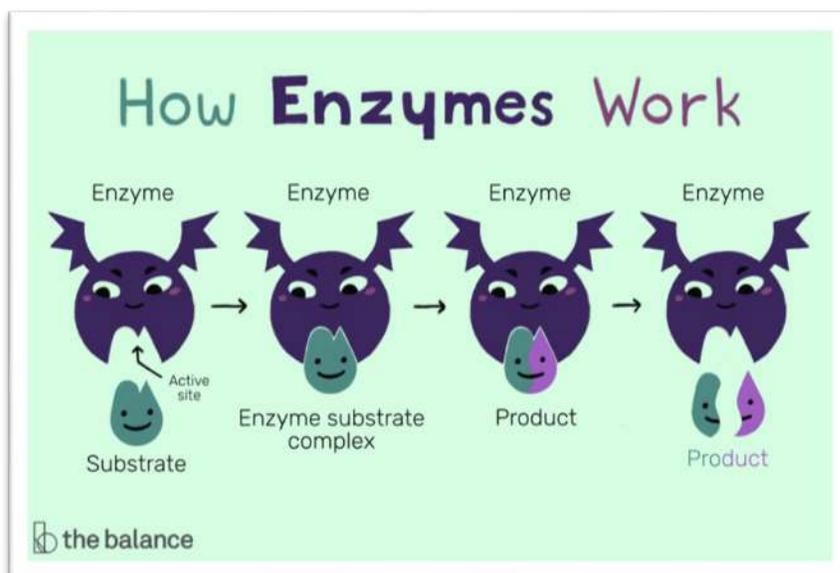
What are the Different Types of Enzymes?

- o **Hydrolases** – They break chemical bonds when water is added. There are more than 200 types of hydrolases.
- o **Oxidoreductases** – They are involved in catalyzing oxidation and reduction reactions.
- o **Transferases** – Involved in the transfer of functional groups from a donor molecule to an acceptor molecule.
- o **Isomerases** – There are 4 different sub-categories under this. They bring about structural changes within the molecule.
- o **Ligases** – An example is DNA ligase which catalyzes ligation or repair of breaks in DNA.
- o **Lyases** – They are also called synthase enzymes.

## 5 Examples of Digestive Enzymes

- o **Amylase** – helps in breaking down large starch molecules, this enzyme is produced in the mouth.
- o **Pepsin** – helps in breaking down proteins, this is produced in the stomach.
- o **Trypsin** – helps in breaking down proteins, this is produced in the pancreas.
- o **Pancreatic lipase** – helps in breaking down fats, once again this enzyme is produced in the pancreas.
- o **Ribonuclease and deoxyribonuclease** – helps in breaking down DNA and RNA, this enzyme is also produced in Pancreas.

TYPES OF EARTH ORBITS
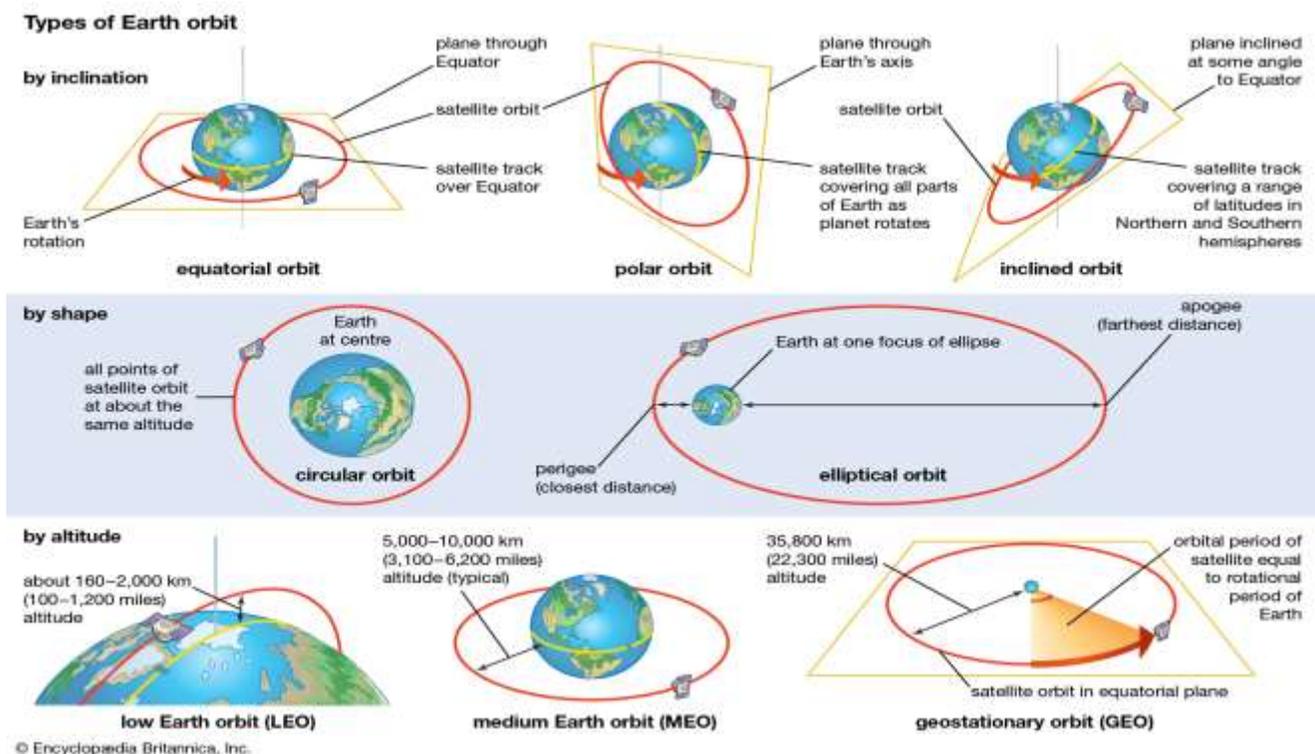
GEOSTATIONARY EARTH ORBIT

o It is also called **Geosynchronous Equatorial Orbit**.
o It is a **low inclination orbit**.
o It makes **satellites placed in it appear 'Stationary'**. [Reason – They have an orbital period that is the same as the earth's rotation period. Hence, the satellite/spacecraft returns to the same point in the sky at the same time each day.]

Motion of satellite in Geostationary Orbit

o **Communication satellites are often placed in GEO**. [Reason – This makes it easy for Earth Antennas to track them without rotation]
o The **GEO satellites are directly overhead at the Earth's equator**. [To an observer who is near to the pole, these will appear lower in the sky.]
o ISRO's Indian National Satellite System [INSAT] is placed in GEO. [It is one of the largest domestic communication satellite systems in the Asia-Pacific region.]
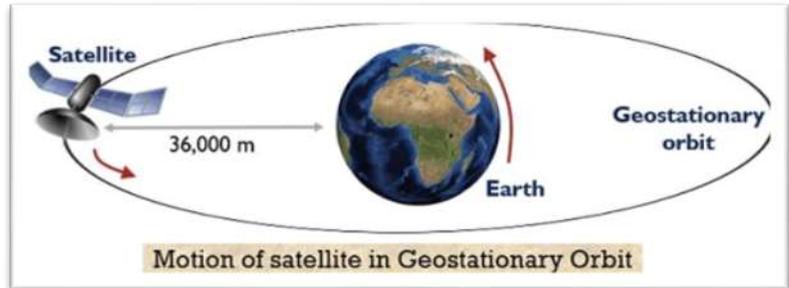
LOW EARTH ORBIT (LEO)

o It is relatively closer to the Earth's surface than other orbits.
o The altitude from the earth's surface could be between **160 Km to 1000 Km**.
o The satellites placed in **LEO can have a tilted plane**.
o It is one of the **commonly used orbits**. [Reason – The satellites placed in it have more available routes as they don't have to follow a particular path around the Earth as the GEO]

o It is **used for satellite imaging**. [The images are of high resolution as the orbit is closer to the surface of the earth.]
o The **International Space Station (ISS) uses LEO** [It makes travel of astronauts easier]
o It is **used by remote sensing satellites**.
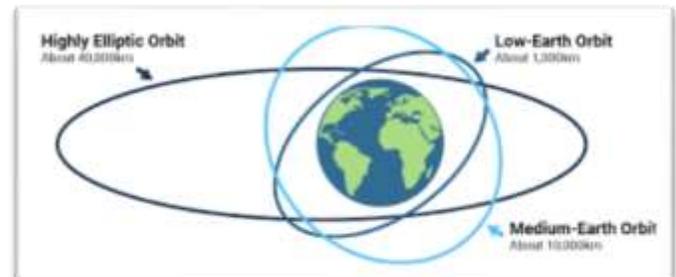
MEDIUM EARTH ORBIT (MEO)

o The orbit, altitude of **which is between LEO and GEO, is known as Medium Earth Orbit**.
o It is also known as **Intermediate Circular Orbit**.
o It shares the similarity with LEO as the MEO satellites too do not have to track the path along the earth's equator.
o Navigation satellites and a number of artificial satellites are placed in MEO.
o **Global Positioning System (GPS) is placed in MEO** (20200 Km)

o Communication satellites too can be placed here. (Example – O3b MEO Satellite Constellation)

POLAR ORBIT AND SUN-SYNCHRONOUS ORBIT (SSO)

o The SSO satellites travel past earth from north to south instead of west to east.
o These pass roughly over the earth's poles.
o The **altitude can go as low as 200 K however**, mostly the **satellites are placed between 600-800 km.**
o As the name suggests, the **SSO satellites are in synchrony with the sun**. [Meaning – The position is 'fixed' relative to the sun.]
o **SSO satellites always visit the same spot at the same local time** as they are sun-synchronous.
o It is **used for imaging, spy, and weather satellites**.

GEOSTATIONARY TRANSFER ORBIT (GTO)

o The **orbits are used by the satellites to travel from one orbit to another**.
o It is a **Hohmann Transfer Orbit between LEO and GSO.**
o GTO **provides satellites a halt [intermediate step]** before they can be placed in their destination orbit. This way, it uses relatively less energy from built-in motors.
o The launchers do not have to directly place a satellite into GEO. Instead, it can first make use of GTO.
o It is a **highly eccentric orbit.** [Meaning – The path is elliptical]

EARTH OBSERVING SATELLITE (EOS-01)

o It is an **Earth observing satellite** and shall play a crucial part in applications under agriculture, disaster management, and forestry support
o The **EOS-01 satellite** is ISRO's first space mission during the COVID-19 pandemic.

What is an Earth Observing Satellite?
o A satellite which through **space sends signals to Earth and monitors the changes which occur on the Earth's surface is called an Earth Observing Satellite (EOS).**
o These satellites can **only be used for non-military purposes** and mainly for environmental benefits
o The first EOS which was launched by ISRO was in the year 1988 and was named IRS-1A
o Currently, there are seventeen such remote sensing Indian satellites present in the orbit. Thirteen of which are in Sun-synchronous orbit and the rest four are in Geostationary orbit
o Few of the important **Earth Observing Satellites include**: RISAT-2BR1, Cartosat Series, SCATSAT-1, INSAT-3D, IMS, Bhaskara-I, and Bhaskara-II

VARIABLE REFRESH RATE

o **Refresh rate** is the **number of times a display is capable of refreshing in a second**.

o It is **measured in hertz (Hz).** So, a 30 Hz or a 60 Hz display can refresh 30 or 60 times per second, respectively.

o The **higher the refresh rate, the better the quality of viewing experience**. Displays with over 120 Hz can deliver a smoother and more comfortable viewing experience.

o This is necessary while playing video games or watching videos.

o **VRR supports a wide range of refresh rates**, allowing its refresh rate to change in real-time based on the frames-per-second (FPS) rate coming from a source device such as a gaming console. For example, displays that support refresh rates from 10 Hz to 120 Hz, or 1Hz to 120 Hz, can adjust to different content styles for a seamless entertainment or gaming experience.

o How does the technology work?

o VRR, which is also termed as **dynamic refresh rate or adaptive refresh rate** by different device makers, is designed to eliminate syncing issues that arise when the refresh rate of a display does not match with the FPS of the content from a source device.

o Issues such as screen-tearing, judder (wobbling effect) and lag are common when refresh rate and FPS are not synchronised.

o This screen technology enables a monitor or a TV to communicate with a gaming console or a media streaming device much more effectively.

o Consequently, when the source device sends video frames as fast as it can, the display is able to adapt its own refresh rate continuously and seamlessly within its specific range to match that of the source.

o VRR is provided by AMD's FreeSync, Nvidia's G-Sync, HDMI 2.1, Apple's ProMotion, and Qualcomm's Q-Sync to name a few.

o Among these, AMD and Nvidia's VRR have been used in PCs for a number of years, and also in PlayStation and Xbox gaming consoles.

Is it available in mobile devices?

o Premium smartphones offer a kind of VRR solution. **Samsung first introduced VRR technology** in its Galaxy Note 20 Ultra and later in the subsequent iterations of its flagship devices.

o The latest Galaxy S22 and S22+ feature adaptive refresh rate from 48 Hz to 120 Hz, whereas the more premium S22 Ultra offers adaptive refresh rate from 1 Hz to 120 Hz.

o **Apple's ProMotion has an adaptive refresh rate of up to 120 Hz** on its new iPad Pro (10.5-inch) and iPad Pro 2nd generation (12.9-inch). Its latest iPhone 13 Pro models also feature an adaptive refresh rate from 10 Hz to 120 Hz.

o In mobile devices, a **VRR solution can not only improve the gaming experience of users** by keeping up with intense gameplay but also save battery power on them as the adaptive refresh rate does not run at the highest rate all the time and switches to a lower refresh rate during less graphic-intensive tasks.

What does it mean for Chromebooks?

o Earlier this month, **Google said that it is working with Valve to bring Steam to Chrome OS.**

o Google's development of new devices for the gaming market, testing of the VRR technology, and collaboration with Valve can be looked at as positive indicators for Chromebooks.

SUPERCOMPUTER OF META

Recent

Facebook-parent Meta announced that it is building an AI supercomputer, the AI Research SuperCluster (RSC) which will be the fastest supercomputer in the world once fully built by mid-2022.

What are supercomputers?

o A supercomputer can perform high-level processing at a faster rate when compared to a normal computer.

o Supercomputing is measured in **floating-point operations per second (FLOPS).**

o Supercomputers are made up of thousands of powerful machines which use better artificial intelligence (AI) models to improve operations processing huge amounts of data in less time.

o They work together to perform complex operations that are not possible with normal computing systems.

o AI supercomputers are built by combining **multiple graphic processing units (GPUs)** into compute nodes, which are then connected by a high-performance network fabric to allow fast communication between those GPUs.

What is the RSC?

o RSC is a **powerful supercomputer that can perform tasks** like translating text between languages and help identify potentially harmful content on Meta's platform.

o It can run **computer vision workflows up to 20 times faster**.

o It can train **large-scale Natural Language Processing (NLP) models** 3 times faster.

o It can help its researchers build better AI models that can work across different languages, seamlessly analyse text, images and video together.

o It also powers real-time voice translations to large groups of people speaking different languages so that they can collaborate on a research project, and develop new augmented reality tools.

What is the role of supercomputers and RSC in the metaverse?

o The AI supercomputers will help build the foundation of metaverse to create AI agents in that environment for

- rich user interaction
- mimicking the real world
- provide high-performance computing to specific tasks

o Meta computes that RSC will pave the way toward building technologies for the metaverse where AI-driven applications and products will play an important role.

o RSC can keep people safe in the metaverse through its training models that can detect harmful content faster than earlier systems.

NEON

o Neon (Ne), chemical element, **inert gas of Group 18 (noble gases)** of the periodic table, used in electric signs and fluorescent lamps.

o **Colourless, odourless, tasteless**, and **lighter than air**, neon gas **occurs in minute quantities in Earth's atmosphere** and **trapped within the rocks of Earth's crust**.

o Though neon is about 31/2 times as plentiful as helium in the atmosphere, dry air contains only 0.0018 percent neon by volume.

Neon

| atomic number | 10 | 20.1797 | atomic weight |

Ne

symbol

electron configuration — $[He]2s^22p^6$ — crystal structure

name — neon — physical state at 20 °C (68 °F)

| ☐ Noble gases | ····· Gas |
| ▣ Face-centred cubic | |

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o This element is **more abundant in the cosmos than on Earth**.

o Neon **liquefies at −246.048 °C (−411 °F)**.

o When **under low pressure, it emits a bright orange-red light if an electrical current** is passed through it. This property is utilized in neon signs (which first became familiar in the 1920s), in some fluorescent and gaseous conduction lamps, and in high-voltage testers.

o The name neon is derived from the **Greek word neos, "new."**

o Neon was discovered (1898) by the British chemists Sir William Ramsay and Morris W. Travers as a component of the most volatile fraction of liquefied crude argon obtained from air. It was immediately recognized as a new element by its unique glow when electrically stimulated.

o Its **only commercial source is the atmosphere**, in which it is 18 parts per million by volume.

o Because its boiling point is −246 °C (−411 °F), neon remains, **along with helium and hydrogen**, in the small fraction of air that resists liquefaction upon cooling to −195.8 °C (−320.4 °F, the boiling point of liquid nitrogen).

o Neon is isolated from this cold, gaseous mixture by bringing it into **contact with activated charcoal, which adsorbs the neon and hydrogen;** removal of hydrogen is effected by adding enough oxygen to convert it all to water, which, along with any surplus oxygen, condenses upon cooling.

o Processing 88,000 pounds of liquid air will produce one pound of neon.

o No stable chemical compounds of neon have been observed. Molecules of the element consist of single atoms.

o Natural neon is a mixture of three stable isotopes: **neon-20 (90.92 percent); neon-21 (0.26 percent); and neon-22 (8.82 percent).**
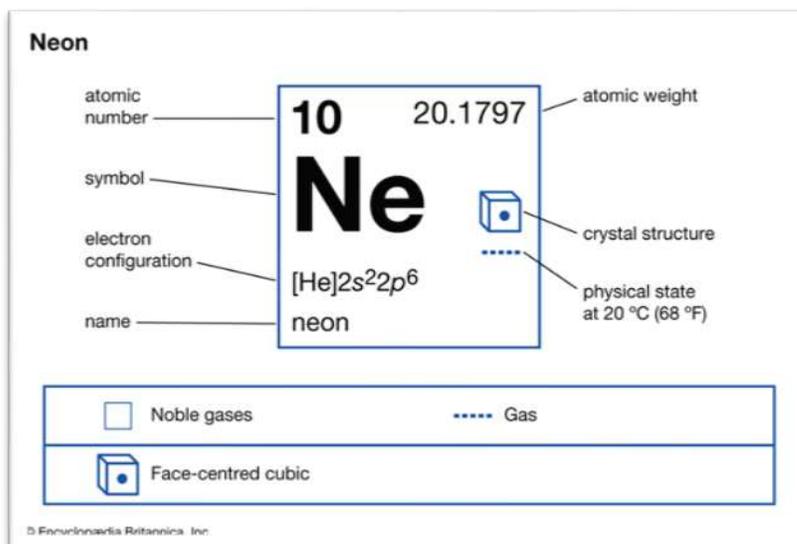
o Neon was the first element shown to consist of more than one stable isotope.
o In 1913, application of the technique of mass spectrometry revealed the existence of neon-20 and neon-22. The third stable isotope, neon-21 was detected later.
o Twelve radioactive isotopes of neon also have been identified.

ARTEMIS MISSION

Recent

*The National Aeronautics and Space Administration (NASA) rolled out its **Artemis I moon mission** to the launchpad for testing at the Kennedy Space Centre in Florida, United States.*

What is Artemis Mission?

o NASA's Artemis mission is **touted as the next generation of lunar exploration**, and is named after the twin sister of Apollo from Greek mythology.
o Artemis is also the **goddess of the moon**.
o It is the first in a series of increasingly complex missions that will enable human exploration to the Moon and Mars.
o With the Artemis programme, **NASA aims to land humans on the moon by 2024**, and it also **plans to land the first woman and first person of colour on the moon.**
o NASA will establish an **Artemis Base Camp on the surface** and a gateway (the lunar outpost around the Moon) in lunar orbit to aid exploration by robots and astronauts.
o The gateway is a critical component of NASA's sustainable lunar operations and will serve as a multi-purpose outpost orbiting the moon.

o Other space agencies are also involved in the Artemis programme.

▪ Canadian Space Agency has committed to providing advanced robotics for the gateway,
▪ The European Space Agency will provide the International Habitat and the ESPRIT module, which will deliver additional communications capabilities among other things.
▪ The Japan Aerospace Exploration Agency plans to contribute habitation components and logistics resupply.

What are Key Points of Artemis I Mission?

o Artemis I, formerly Exploration Mission-1, will be the first integrated flight test of NASA's Deep Space Exploration Systems:

▪ **Orion spacecraft:** Orion spacecraft is going to remain in space without docking to a space station, longer than any ship for astronauts has ever done before.
▪ **Space Launch System (SLS) rocket:** It is the most powerful rocket in the world — and travels 2,80,000 miles from the earth for over four to six weeks during the course of the mission.
▪ **Newly upgraded Exploration Ground Systems** at Kennedy Space Centre in Cape Canaveral, Florida.
▪ It is an uncrewed space mission where the spacecraft will launch on an SLS rocket.

o The primary operating goal of the mission is to assure a safe crew module entry, descent, splashdown, and recovery.
o SLS and Orion under Artemis I will be launched from the Kennedy Space Centre in Florida, U.S. in the summer of 2022.
o The mission will end with the Orion spacecraft's ability to return safely to the earth.

What are the future missions in the Artemis programme?

o The second flight under the programme will have crew on board and will test Orion's critical systems with humans onboard.
o Eventually, the learnings from the Artemis programme will be utilised to send the first astronauts to Mars.
o NASA plans on using the lunar orbit to gain the necessary experience to extend human exploration of space farther into the solar system.
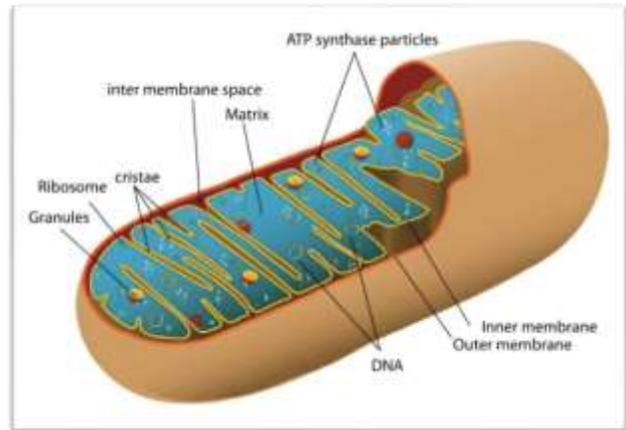
MITOCHONDRIA

o Popularly known as the **"Powerhouse of the cell,"** mitochondria (singular: mitochondrion) are a **double membrane-bound organelle** found in most eukaryotic organisms.
o They are **found inside the cytoplasm and essentially function** as the cell's "digestive system."
o They play a major role in **breaking down nutrients and generating energy-rich molecules for the cell**. Many of the biochemical reactions involved in cellular respiration take place within the mitochondria.
o The term 'mitochondrion' is derived from the Greek words **"mitos" and "chondrion"** which means "thread" and "granules-like", respectively.

o It was first described by a German pathologist named Richard Altmann in the year 1890.

Structure of Mitochondria

o The mitochondrion is a double-membraned, rod-shaped structure found in both plant and animal cell.

o Its size ranges from **0.5 to 1.0 micrometre in diameter**.

o The structure comprises an outer membrane, an inner membrane, and a **gel-like material called the matrix.**

o The outer membrane and the inner membrane are **made of proteins and phospholipid layers** separated by the intermembrane space.

o The outer membrane covers the surface of the mitochondrion and has a large number of special proteins known as porins.

o It is freely permeable to ions, nutrient molecules, energy molecules like the ADP and ATP molecules.

Cristae

o The inner membrane of mitochondria is rather complex in structure. It has many folds that form a layered structure called **cristae,** and this helps in increasing the surface area inside the organelle. The cristae and the proteins of the inner membrane aids in the production of ATP molecules.

o The inner membrane is strictly permeable only to oxygen and to ATP molecules. A number of chemical reactions take place within the inner membrane of mitochondria.

Mitochondrial Matrix

o The mitochondrial matrix is a viscous fluid that contains a mixture of enzymes and proteins. It also comprises ribosomes, inorganic ions, mitochondrial DNA, nucleotide cofactors, and organic molecules. The enzymes present in the matrix play an important role in the synthesis of ATP molecules.

Functions of Mitochondria

o The most important function of mitochondria is to produce energy through the process of oxidative phosphorylation. It is also involved in the following process:

o Regulates the **metabolic activity** of the cell

o Promotes the **growth of new cells** and cell multiplication

o Helps in **detoxifying ammonia** in the liver cells

o Plays an **important role in apoptosis** or programmed cell death

o Responsible for **building certain parts of the blood and various hormones** like testosterone and oestrogen

o Helps in **maintaining an adequate concentration of calcium ions** within the compartments of the cell
o It is also involved in various cellular activities like cellular differentiation, cell signalling, cell senescence, controlling the cell cycle and also in cell growth.

Disorders Associated With Mitochondria

o Any irregularity in the way mitochondria functions can directly affect human health, but often, it is difficult to identify because symptoms differ from person to person. Disorders of the mitochondria can be quite severe; in some cases, it can even cause an organ to fail.
o **Mitochondrial diseases:** Alpers Disease, Barth Syndrome, Kearns-Sayre syndrome (KSS)

INDIAN POLITY
(Constitution; Polity and Governance)

ELECTION OF PRESIDENT

Recent

Elections are due to elect the next President of India.

o Under the Constitution of India, there shall always be a **President of India (Article 52 of the Constitution).**

o He holds the highest elective office in the country and is elected in accordance with the provisions of the **Constitution and the Presidential and vice-Presidential Elections Act, 1952**.

o The said Act is supplemented by the **provisions of the Presidential and Vice-Presidential Elections Rules, 1974**.

o The President holds office for a period of five years from the date on which he enters upon his office.

Qualifications

o Under **Article 58,** a candidate should fulfill the following eligibility conditions to contest the election to the Office of President: -

- Must be a **citizen of India**,
- Must have completed **35 years of age**,
- Must be **eligible to be a member of the Lok Sabha**,
- Should **not be holding any office of profit under the Government of India or the Government of any State or under any local or other authority** subject to the control of any of the said Governments.
- However, the candidate may be holding the office of President or Vice-President or Governor of any State or Ministers of the Union or any State and shall be eligible to contest election.

Election

o The Indian President is elected through an **electoral college system**, wherein the votes are cast by **national and State-level lawmakers**.

o The elections are **conducted and overseen by the Election Commission (EC) of India**.

o The electoral college is made up of all the **elected members of the Upper and Lower Houses of Parliament (Rajya Sabha and Lok Sabha MPs),** and the **elected members of the Legislative Assemblies of States and Union Territories (MLAs).**

o This means, in the upcoming polls, the number of electors will be 4,896 — 543 Lok Sabha MPs, 233 MPs of the Rajya Sabha, and 4,120 MLAs of all States, including the National Capital Territory (NCT) of Delhi and Union Territory of Puducherry.

o Before the voting, **comes the nomination stage**, where the candidate intending to stand in the election, **files the nomination along with a signed list of 50 proposers and 50 seconders**.

o **These proposers and seconders can be anyone from the total of 4,896 members of the electoral college** from the State and national level. The rule for securing 50 proposers and seconders was implemented when the EC noticed, in 1974, that several candidates, many without even a bleak chance of winning, would file their nominations to contest the polls.

o An elector cannot propose or second the nomination of more than one candidate.

When is the election of the Office of President of India held?

o Under the provisions of sub-section (3) of Section 4 of the Presidential and Vice-Presidential Elections Act, 1952, the notification calling the election to the office of the President can be issued by the **Election Commission on any day within the period of sixty days before the expiry of the term of office of the outgoing President.**

o The election schedule shall be so fixed, that **the President-elect is able to enter upon his office on the day following the expiry of the term of the outgoing President**.

What is the value of each vote and how is it calculated?

o A vote cast by each MP or MLA is not calculated as one vote. There is a **larger vote value attached to it.**

o The **fixed value of each vote by an MP of the Rajya Sabha and the Lok Sabha is 708**. Meanwhile, the **vote value of each MLA differs from State to State based** on a calculation that factors in its **population vis-a-vis the number of members in its legislative Assembly**.

o As per the Constitution (Eighty-fourth Amendment) Act 2001, currently, the population of States is taken from the figures of the **1971 Census**. This will change when the figures of the Census taken after the year 2026 are published.

o The value of each **MLA's vote is determined by dividing the population of the State by the number of MLAs in its legislative Assembly**, and the **quotient achieved is further divided by 1000.** Uttar Pradesh for instance, has the highest vote value for each of its MLAs, at 208. The value of one MLA's vote in Maharashtra is 175, while that in Arunachal Pradesh is just 8. The total votes of each Legislative Assembly are calculated by multiplying the vote value of each MLA by the number of MLAs.

o Finally, based on these values, the total number of votes of all Rajya Sabha and Lok Sabha MPs would be 5,59,408 (776 MPs X 708), and the total votes of all MLAs from State Legislative Assemblies would come up to 5,49,495. Thus, the grand total vote value of the whole electoral college comes up to 10,98,903.

Requirement for victory

o A nominated candidate does not secure victory based on a simple majority but through a system of bagging a specific quota of votes. While counting, the EC totals up all the valid votes cast by the electoral college through paper ballots and to win, the candidate **must secure 50% of the total votes cast + 1.**

o Unlike general elections, where electors vote for a single party's candidate, the voters of the electoral college write the names of candidates on the ballot paper in the order of preference.

Returning Officer/Assistant Returning Officer for the election

o By convention, **the Secretary General, Lok Sabha** or the **Secretary General, Rajya Sabha** is appointed as the Returning Officer, by rotation.
o Two other senior officers of the Lok Sabha/ Rajya Sabha Secretariat and the Secretaries and one more senior officer of Legislative Assemblies of all States including NCT of Delhi and Union Territory of Puducherry, are also appointed as the Assistant Returning Officers.
o The Election Commission of India makes such appointments.

✤ DRAFT INDIA DATA ACCESSIBILITY & USE POLICY 2022

Features

Indian Data Council (IDC) and India Data Office (IDO):
o It prescribes that a regulatory authority called the **Indian Data Council (IDC)** and an agency by the name **India Data Office (IDO)** will oversee framing metadata standards and enforcement, respectively.
o While the IDC will comprise the IDO and data officers of five government departments, the IDO will be **constituted by the Ministry of Electronic and Information Technology (MeitY)** to streamline and consolidate data access and sharing public data repositories across the government and other stakeholders.
o The IDC's **tasks** will include defining frameworks for defining high-value datasets, finalizing data standards and metadata standards, and reviewing the implementation of the policy.
o The **nomination of departments and state governments in the IDC will be by rotation** with tenure of two years for one department.
o Each central ministry/department will adopt and publish its domain-specific metadata and data standards.
o These standards would be compliant with the interoperability framework, policy on open standards, institutional mechanisms for formulation of domain-specific metadata and other relevant guidelines published on the e-gov standards portal.
o **Time frame:** The draft policy also looks to provide for the time frame of the government holding datasets.

Issues

o The **core objective** of this policy seems to be purely **revenue generation**.
o It lacks clarity on a number of things such as how a high-value dataset will be defined.
o **Overlapping of areas:** though a background document for the draft policy talks about the Personal Data Protection Bill and Non-Personal Data Protection Framework, the draft policy doesn't clearly state how areas of it overlap, like how the consent and anonymisation of an individual's data that resides with the government will be dealt with.

o The government might be contemplating scrapping the data protection Bill itself in its current form, which, after the Joint Parliamentary Committee report, would have needed to include a non-personal data protection framework also.

o The government's efforts are towards monetisation, which itself follows from the NITI Aayog's thinking that all non-personal data is a national resource.

o This policy may also see a big push back from big tech firms as their business models are based on monetising this kind of large-scale data.

Significance of the move

o Stakeholders like start-ups, other enterprises, individuals and researchers will be able to access enriched data through data licensing, sharing, and valuation within the frameworks of data security and privacy.

o A broad set of guidelines would be standardized and provided to help ministries and departments define their data retention policy.

o Maximizing access to and use of quality public sector data

o Improve policymaking, evaluation and monitoring

o Enhancing the efficiency of service delivery

o Facilitating the creation of public digital platforms

o Protecting the privacy and security of all citizens

o Streamlining inter-government data sharing

o Promoting transparency, accountability and ownership in data sharing and release

o Building digital and data capacity, knowledge and competency of government officials

o Promoting data interoperability

o Ensuring greater citizen awareness with open data

o Enabling secure pathways

o Increasing the availability of high-value datasets

o Improving the overall compliance to data sharing policies and standards

THE CRIMINAL PROCEDURE (IDENTIFICATION) BILL, 2022

Context

o The **Identification of Prisoners Act, 1920** allows **police officers to collect certain identifiable information (fingerprints and footprints) of persons** including convicts and arrested persons.

o Also, a Magistrate may **order measurements or photographs of a person** to be taken to aid the investigation of an offence.

o In **case of acquittal or discharge of the person, all material must be destroyed**.

o Now, there have been advances in technology that allow other measurements to be used for criminal investigations. The **DNA Technology (Use and Application) Regulation Bill, 2019** (pending in Lok Sabha) provides a framework for using DNA technology for this purpose.

o In **1980, the Law Commission of India**, while examining the 1920 Act, had noted the need to revise it to bring it **in line with modern trends in criminal investigation**.

o In **March 2003, the Expert Committee on Reforms of the Criminal Justice System** (Chair: Dr. Justice V. S. Malimath) recommended amending the 1920 Act to empower the Magistrate to authorise the collection of data such as blood samples for DNA, hair, saliva, and semen.

o In this regard, **The Criminal Procedure (Identification) Bill, 2022** was introduced in Lok Sabha on March 28, 2022. The Bill seeks to replace the Identification of Prisoners Act, 1920.

Key Features of the Bill

The Bill expands:

o the type of data that may be collected,

o persons from whom such data may be collected, and

o the authority that may authorise such collection.

o It also provides for the data to be stored in a central database.

o Under both the 1920 Act and the 2022 Bill, resistance or refusal to give data will be considered an offence of obstructing a public servant from doing his duty.

1920 Act	Changes in the 2022 Bill
Data permitted to be collected	
Fingerprints, foot-print impressions, photographs	Adds: (i) biological samples, and their analysis, (ii) behavioural attributes including signatures, handwriting, and (iii) examinations under sections 53 and 53A of CrPC (includes blood, semen, hair samples, and swabs, and analyses such as DNA profiling)
Persons whose data may be collected	
Convicted or arrested for offences punishable with rigorous imprisonment of one year or more Persons ordered to give security for good behaviour or maintaining peace Magistrate may order in other cases collection from any arrested person to aid criminal investigation	Convicted or arrested for any offence. However, biological samples may be taken forcibly only from persons arrested for offences against a woman or a child, or if the offence carries a minimum of seven years imprisonment Persons detained under any preventive detention law On the order of Magistrate, from any person (not just an arrested person) to aid investigation
Persons who may require/ direct collection of data	
Investigating officer, officer in charge of a police station, or of rank Sub-Inspector or above	Officer in charge of a police station, or of rank Head Constable or above. In addition, a Head Warder of a prison
Magistrate	Metropolitan Magistrate or Judicial Magistrate of first class. In case of persons required to maintain good

	behaviour or peace, the Executive Magistrate

Issues to consider

Bill may violate the Right to Privacy as well as Equality

o The Bill permits the **collection of certain identifiable information about individuals for the investigation of crime**.

o The information specified under the Bill forms part of the personal data of individuals and is thus protected under the right to privacy of individuals.

o The **right to privacy has been recognised as a fundamental right by the Supreme Court (2017).** The Court laid out principles that should govern any law that restricts this right.

o These include a **public purpose, a rational nexus of the law with such purpose, and that this is the least intrusive way to achieve the purpose**. That is, the infringement of privacy must be necessary for and proportionate to that purpose.

o The Bill may fail this test on several parameters. It may also fail Article 14 requirements of a law to be fair and reasonable, and for equality under the law.

o The issue arises due to the fact that:

1. data can be collected not just from convicted persons but also from persons arrested for any offence and from any other person to aid an investigation;

2. the data collected does not need to have any relationship with evidence required for the case;

3. the data is stored in a central database which can be accessed widely and not just in the case file;

4. (the data is stored for 75 years (effectively, for life); and

5. safeguards have been diluted by lowering the level of the official authorised to collect the data.

Persons who data can be collected

o The Bill expands the **set of persons whose data may be collected to include persons convicted or arrested for any offence.** For example, this would include someone arrested for rash and negligent driving, which carries a penalty of a maximum imprisonment of six months.

o It also **expands the power of the Magistrate to order collection from any person** (earlier only from those arrested) to aid investigation. This differs from the observation of the Law Commission (1980) that the 1920 Act is based on the principle that the less serious the offence, the more restricted should be the power to take coercive measures.

o Note that the **DNA Technology (Use and Application) Regulation Bill, 2019** waives the consent requirement for collecting DNA from persons arrested for only those offences which are punishable with death or imprisonment for a term exceeding seven years.

Persons who may order data to be collected

o Under the 1920 Act, a Magistrate may order data to be collected in order to aid the investigation of an offence. The Law Commission (1980) remarked that the 1920 Act did not require the Magistrate to give reasons for his order. It observed that the ambit of the law was very wide ("any person" arrested in connection with "any investigation"), and refusal to obey the order could carry criminal penalties. It **recommended that the provision be amended to require the Magistrate to record reasons for giving the order.**

o The Bill does not have any such safeguard. Instead, **it lowers the level of the police officer who may take the measurement (from sub-inspector to head constable)** and also allows the head warder of a prison to take measurements.

What data may be collected?

o The Bill widens the ambit of data to be collected to include **biometrics (finger prints, palm prints, foot prints, iris and retina scan), physical and biological samples (not defined but could include blood, semen, saliva, etc.), and behavioural attributes (signature, handwriting, and could include voice samples).**

o It does not limit the measurements to those required for a specific investigation. For example, the Bill permits taking the handwriting specimen of a person arrested for rash and negligent driving. It also does not specifically prohibit taking DNA samples (which may contain information other than just for determining identity). Note that under Section 53 of the Code of Criminal Procedure, 1973, collection of biological samples and their analysis may be done only if "there are reasonable grounds for believing that such examination will afford evidence as to the commission of an offence".

Biological samples

o The Bill makes an exception in case of biological samples. A person may refuse to give such samples unless he is arrested for an offence: (i) against a woman or a child, or (ii) that carries a minimum punishment of seven years imprisonment. The first exception is broad. For example, it could include the case of theft against a woman.

o Such a provision would also violate equality of law between persons who stole an item from a man and from a woman.

Retaining data

o The Bill allows retaining the **data for 75 years**. The data would be deleted only on the final acquittal or discharge of a person arrested for an offence. The retention of data in a central database and its potential use for the investigation of offences in the future may also not meet the necessity and proportionality standards.

⚜ THE DELHI MUNICIPAL CORPORATION (AMENDMENT) BILL, 2022

Recent

o The Delhi Municipal Corporation (Amendment) Bill, 2022 was introduced in Lok Sabha on March 25, 2022. The Bill seeks to amend the **Delhi Municipal Corporation Act, 1957**.

o The Act was **amended in 2011 by Delhi Legislative Assembly to trifurcate the erstwhile Municipal Corporation of Delhi into:**

- North Delhi Municipal Corporation,
- South Delhi Municipal Corporation, and
- East Delhi Municipal Corporation.

The **new Bill seeks to unify** the three corporations.

o **Unification of Municipal Corporations in Delhi:** The Bill replaces the three municipal corporations under the Act with one Corporation named the Municipal Corporation of Delhi.

Powers of the Delhi government

o The Act as amended in 2011 empowers the Delhi government to decide various matters under the Act. These include:

- total number of seats of councillors and number of seats reserved for members of the Scheduled Castes,
- division of the area of corporations into zones and wards,
- delimitation of wards,
- matters such as salary and allowances, and leave of absence of the Commissioner,
- sanctioning of consolidation of loans by a corporation, and
- sanctioning suits for compensation against the Commissioner for loss or waste or misapplication of Municipal Fund or property.
- Similarly, the Act mandates that the Commissioner will exercise his powers regarding building regulations under the general superintendence and directions of Delhi government.

o The **new Bill instead empowers the central government to decide these matters**.

Number of councillors

o The Act provides that the number of seats in the three corporations taken together should not be more than 272. The 14th Schedule to the Act specifies 272 wards across the three Corporations.

o The **new Bill states that the total number of seats in the new Corporation should not be more than 250**.

Removal of Director of Local Bodies

o The Act provides for a Director of Local Bodies to assist the Delhi government and discharge certain functions which include:

- coordinating between Corporations,
- framing recruitment Rules for various posts, and
- (coordinating the collecting and sharing of toll tax collected by the respective Corporations.

o The **new Bill omits the provision** for a Director of Local Bodies.

Special officer to be appointed by the central government:

o The new Bill provides that the central government may appoint a Special Officer to exercise powers of the Corporation until the first meeting of the Corporation is held after the commencement of the Bill.

o **E-governance system for citizens**: The Bill adds that obligatory functions of the new Corporation will include establishing an e-governance system for citizen services on anytime-anywhere basis for better, accountable, and transparent administration.

o **Conditions of service for sweepers**: The Act provides that a sweeper employed for doing house scavenging of a building would be required to give a reasonable cause or a 14 day notice before discontinuing his service. The Bill seeks to omit this provision.

RAJYA SABHA

Recent

Rajya Sabha bade farewell to 72 members retiring this year.

Background

o The **'Council of States'** which is also known as **Rajya Sabha**, a nomenclature that was announced by the chair in the House on the 23rd August, 1954 has its own distinctive features.

o The **origin of the second Chamber can be traced to the Montague-Chelmsford Report of 1918**.

o The **Government of India Act, 1919 provided for the creation of a 'Council of State'** as a second chamber of the then legislature with a restricted franchise which actually came into existence in 1921.

o The **Governor-General was the ex-officio President of the then Council of State**. The Government of India Act, 1935, hardly made any changes in its composition.

o The **Constituent Assembly**, which first met on 9 December 1946, also acted as the Central Legislature till 1950, when it was converted as **'Provisional Parliament'**. During this period, **the Central Legislature which was known as Constituent Assembly (Legislative) and later Provisional Parliament was unicameral** till the first elections were held in 1952.

o Extensive debate took place in the Constituent Assembly regarding the utility or otherwise of a Second Chamber in Independent India and ultimately, it was decided to **have a bicameral legislature for independent India mainly because a federal system was considered to be most feasible form of Government for such a vast country with immense diversities.**

o A second chamber known as the 'Council of States', therefore, was **created with altogether different composition and method of election from that of the directly elected House of the People**.

o It was **meant to be the federal chamber** i.e., a House elected by the elected members of Assemblies of the States and two Union Territories in which States were not given equal representation.

o Apart from the elected members, **provision was also made for the nomination of twelve members to the House by the President.**

o The **minimum age of thirty years** was fixed for membership as against twenty-five years for the Lower House.

o The element of dignity and prestige was added to the Council of State House by making the **Vice-President of India ex-officio Chairman of the Rajya Sabha** who presides over its sittings.

Constitutional Provisions relating to Rajya Sabha

Composition/Strength

o **Article 80** of the Constitution lays down the **maximum strength of Rajya Sabha as 250**, out of which 12 members are nominated by the President and 238 are representatives of the States and of the two Union Territories.

o The present strength of Rajya Sabha, however, is 245, out of which 233 are representatives of the States and Union territories of Delhi and Puducherry and 12 are nominated by the President. The members nominated by the President are persons having special knowledge or practical experience in respect of such matters as literature, science, art and social service.

o The **Fourth Schedule to the Constitution** provides for allocation of seats to the States and Union Territories in Rajya Sabha.

o The allocation of seats is made on the basis of the population of each State.

Qualifications

o Article 84 of the Constitution lays down the qualifications for membership of Parliament. A person to be qualified for the membership of the Rajya Sabha should possess the following qualifications:

- he must be a **citizen of India** and make and subscribe before some person authorized in that behalf by the Election Commission an oath or affirmation according to the form set out for the purpose in the Third Schedule to the Constitution;
- he must be **not less than 30 years of age;**
- he must possess such other qualifications as may be prescribed in that behalf by or under any law made by Parliament.

Disqualifications

o **Article 102** of the Constitution lays down that a person shall be disqualified for being chosen as, and for being, a member of either House of Parliament –

- if he holds any office of profit under the Government of India or the Government of any State, other than an office declared by Parliament by law not to disqualify its holder;
- if he is of unsound mind and stands so declared by a competent court;
- if he is an undischarged insolvent;
- if he is not a citizen of India, or has voluntarily acquired the citizenship of a foreign State, or is under any acknowledgement of allegiance or adherence to a foreign State;
- if he is so disqualified by or under any law made by Parliament.
- Explanation- For the purpose of this clause a person shall not be deemed to hold an office of profit under the Government of India or the Government of any State by reason only that he is a Minister either for the Union or for such State.

o Besides, the **Tenth Schedule** to Constitution provides for disqualification of the members on ground of defection.

o As per the provisions of the Tenth Schedule, a member may be disqualified as a member, if he **voluntarily gives up the membership of his political party**; or if **he votes or abstains from voting in the House contrary to any direction issued by the political party** to which

he belongs, unless such voting or abstention has been condoned by the political party within fifteen days. A member elected as an independent candidate shall be disqualified if he joins any political party after his election.

o A **member nominated to the House by the President, however, is allowed to join a political party** if he/she does so within the first six months of taking seat in the House.

o A member shall not be disqualified on this account, if he voluntarily leaves the membership of his political party after he is elected Deputy Chairman, Rajya Sabha.

Process for Election/Nomination

Electoral College

o The representatives of the States and of the Union Territories in the Rajya Sabha are elected by the **method of indirect election**.

o The representatives of each State and two Union territories **are elected by the elected members of the Legislative Assembly of that State and by the members of the Electoral College for that Union Territory,** as the case may be, in accordance with the **system of proportional representation by means of the single transferable vote.**

o The Electoral College for the National Capital Territory of Delhi consists of the elected members of the Legislative Assembly of Delhi, and that for Puducherry consists of the elected members of the Puducherry Legislative Assembly.

Biennial/Bye-election

o Rajya Sabha is a **permanent House and is not subject to dissolution**. However, **one-third Members of Rajya Sabha retire after every second year**. A member who is elected for a full term serves for a period of six years.

o The election held to fill a vacancy arising otherwise than by retirement of a member on the expiration of his term of office is **called 'Bye-election'**. A member elected in a bye-election remains member for the remainder of the term of the member who had resigned or died or disqualified to be member of the House under the Tenth Schedule.

Presiding Officers - Chairman and Deputy Chairman

o The Presiding Officers of Rajya Sabha have the responsibility to conduct the proceedings of the House.

o The **Vice-President of India is ex-officio Chairman of Rajya Sabha**.

o Rajya Sabha **also chooses from amongst its members, a Deputy Chairman**.

o There is also a **Panel of Vice-Chairmen in Rajya Sabha**, the members of which are nominated by the Chairman, Rajya Sabha.

o In the absence of the Chairman and Deputy Chairman, a member from the Panel of Vice-Chairmen presides over the proceedings of the House.

Secretary-General

o The Secretary-General is appointed by the **Chairman of Rajya Sabha** and holds rank equivalent to the **highest civil servant of the Union**.

o The Secretary-General works with anonymity and is readily available to the Presiding Officers for rendering advice on parliamentary matters.

o The **Secretary-General is also the administrative head of the Rajya Sabha Secretariat** and the custodian of the records of the House. He works under the direction and control of the Chairman, Rajya Sabha.

Special Powers of Rajya Sabha

o Rajya Sabha being a federal chamber enjoys certain special powers under the Constitution. All the subjects/areas regarding legislation have been divided into **three Lists - Union List, State List and concurrent List**.

o Union and State Lists **are mutually exclusive** - one cannot legislate on a matter placed in the sphere of the other. However, **if Rajya Sabha passes a resolution by a majority of not less than two-thirds of members present and voting saying that it i**s "necessary or expedient in the national interest" that Parliament should make a law on a matter enumerated in the State List, Parliament becomes empowered to make a law on the subject specified in the resolution, for the whole or any part of the territory of India.

o Such a resolution remains in force for a maximum period of one year but this period can be extended by one year at a time by passing a similar resolution further.

o If Rajya Sabha passes a resolution by a majority of **not less than two-thirds of the members present and voting** declaring that it is necessary or expedient in the national interest to **create one or more All India Services common to the Union and the States**, Parliament becomes empowered to create by law such services.

o Under the Constitution, the President is empowered to issue **Proclamations in the event of national emergency, in the event of failure of constitutional machinery in a State, or in the case of financial emergency. E**very such proclamation has to be approved by both **Houses of Parliament within a stipulated period.** Under certain circumstances, however, Rajya Sabha enjoys special powers in this regard. If a Proclamation is issued at a time when Lok Sabha has been dissolved or the dissolution of Lok Sabha takes place within the period allowed for its approval, then the proclamation remains effective, if the resolution approving it is passed by Rajya Sabha within the period specified in the **Constitution under articles 352, 356 and 360.**

Rajya Sabha in Financial Matters

o A Money Bill can be introduced only in Lok Sabha. After it is passed by that House, it is transmitted to Rajya Sabha for its concurrence or recommendation. The power of Rajya Sabha in respect of such a Bill is limited.

o Rajya Sabha **has to return such a Bill to Lok Sabha within a period of fourteen days** from its receipt. If it is not returned to Lok Sabha within that time, the Bill is deemed to have been passed by both Houses at the expiration of the said period in the form in which it was passed by Lok Sabha.

o Again, **Rajya Sabha cannot amend a Money Bill**; it **can only recommend amendments** and Lok Sabha may either accept or reject all or any of the recommendations made by Rajya Sabha.

o Apart from a Money Bill, certain other categories of Financial Bills **also cannot be introduced in Rajya Sabha.** There are, however, some other types of Financial Bills on which there is no limitation on the powers of the Rajya Sabha. These Bills may be initiated in either House and Rajya

Sabha has powers to reject or amend such Financial Bills like any other Bill. Of course, such Bills cannot be passed by either House of Parliament unless the President has recommended to that House the consideration thereof.

o From all this, however, it does not follow that Rajya Sabha has nothing to do in matters relating to finance. The Budget of the Government of India **is laid every year before Rajya Sabha also and its members discuss it.**

o Though **Rajya Sabha does not vote on Demands for Grants of various Ministries** - a matter exclusively reserved for Lok Sabha - **no money, however, can be withdrawn from the Consolidated Fund of India unless the Appropriation Bill has been passed by both the Houses**.

o Similarly, the Finance Bill is also brought before Rajya Sabha. Besides, the Department-related Parliamentary Standing Committees that examine the annual Demands for Grants of the Ministries/Departments are joint committees having ten members from Rajya Sabha.

ECONOMY

(Global and Indian)

INDIA-AUSTRALIA TRADE AGREEMENT

Recent

India and Australia signed an ***Economic Cooperation and Trade Agreement (ECTA).***

The landmark bilateral trade pact is the ***second trade agreement India has signed this year after inking a similar deal with the United Arab Emirates in February***.

Trade Booster

INDIA'S TRADE WITH OZ ($ b)

	Goods	Services
Export	6.9	3.6
Import	15.1	1.9

(Calendar year 2021)

INDIA'S GAINS

GOODS

Immediate nil duty on **96.4%** exports; **No duty on** textiles, leather, furniture, sports goods, jewellery

Phasing out to zero duty on remaining **113** tariff lines

Steel, aluminium, garments to gain from cheap raw material import but **no concession to** milk, dairy products, chickpeas, apple, wheat, rice, sugar, iron ore, medical devices

SERVICES

4-year visa for 1,800 chefs, yoga teachers every yr

Post study work visa of **2-4 years** for Indian students on reciprocal basis

Multiple entry work & holiday visa to **1,000** young Indians

OZ BENEFITS

Immediate **nil duty** on **85%** of Aus exports

No or low duty on **30.3%** tariff lines in 3-10 yrs

Limited quota for oranges, mandarins, almonds, pears, cotton

o The ECTA is **expected to increase trade between the two sides to $45-50 billion over five years**, from the current estimate of $27 billion, and create over 10 lakh additional job opportunities. Under this agreement, India will give **85% of Australia's exports zero-duty access to its domestic market.**

o India is expected to get **zero-duty access to Australia for its goods over five years**. The negotiations had begun over a decade ago in 2011, but were restarted in September 2021.

o India and Australia have signed a historic interim **Economic Cooperation And Trade Agreement (INDAUS ECTA),** which will give a fillip to India's exports in the textiles, leather, gems, and jewellery sector Down Under.

o For India, the ECTA with Australia is the **first agreement with a large developed economy** of the world after more than a decade.

o Australia is also the **third OECD country after Japan and South Korea** with which India has signed a Free Trade Agreement (FTA).

o The two sides will be negotiating for a full-fledged **Comprehensive Economic Cooperation Agreement (CECA).**
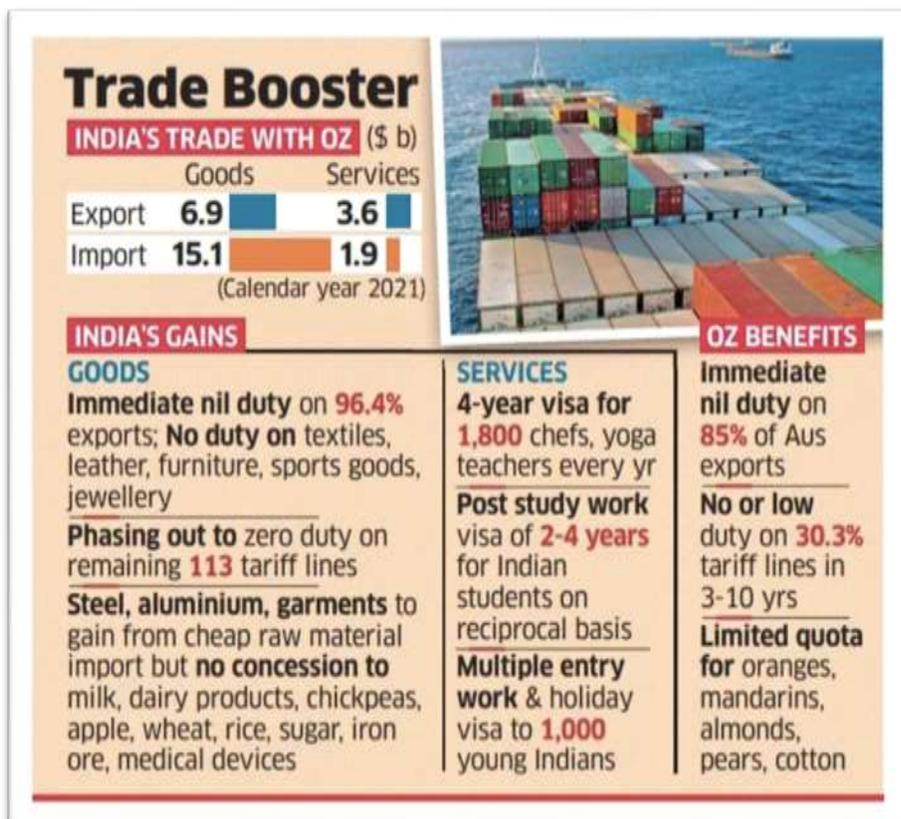
India-Australia ECTA

o It **covers almost all the tariff lines** dealt in by India and Australia respectively.

o India will **benefit from preferential market access** provided by Australia on 100% of its tariff lines.

o India will be offering **preferential access to Australia on over 70%** of its tariff lines.

o Under the agreement, Indian **graduates from STEM (Science, Technology, Engineering and Mathematics) will be granted extended post-study work visas**.

o It will provide zero-duty access to 96% of India's exports to Australia and will give about 85% of Australia's exports zero-duty access to the Indian market

o It will boost bilateral trade in goods and services to USD 45-50 billion over five years, up from around USD 27 billion, and generate over one million jobs in India, according to a government estimate.

Significance

o **Enhanced Exports:** Currently, Indian exports face a tariff disadvantage of 4-5% in many labour-intensive sectors vis-à-vis competitors in the Australian market such as China, Thailand, Vietnam, South Korea, Japan, Indonesia and Malaysia. Removing these barriers under the ECTA can enhance India's merchandise exports significantly.

o **Cheaper Raw Materials**: Australian exports to India are more concentrated in raw materials and intermediate products. Due to zero-duty access to 85% of Australian products, many industries in India will get cheaper raw materials and thus become more competitive, particularly in sectors like steel, aluminium, power, engineering and so on.

o **Change in Perceptions for India:** The recent trade agreement will also assist in changing perceptions in the developed world which has always typecast India as 'protectionist' and address scepticism around India's openness to do business with the world.

o **Stronger Indo-Pacific:** Strong Australia India economic ties will also pave the way for a stronger Indo-Pacific economic architecture, that's not just based on flows of physical goods, money and people, but on the basis of building capacity led connections, complementarities, sustainable commitments and mutual dependence across countries and sub-regions.

What can be the Way Forward?

o **Investment Protection:** India's overly defensive stand on investment protection under international law is a consequence of several international claims under BITs.

India should come out of its shell and accept investment protection as part of its broader economic commitments under international law. This will enable India to realise the full potential of these CECAs.

o **Adding Investment Chapters:** If investment protection is made a part of such CECAs, India will have a better bargaining position to negotiate balanced investment chapters in comparison to a standalone investment treaty.

When several related issues are part of the same deal, there is a greater likelihood of "give and take" and reaching a win-win compromise.

o **Improving Competitiveness:** While the Government of India has successfully negotiated an excellent trade deal for businesses, it is important to realise that accessing the Australian market wouldn't be a cakewalk given the fact that Australia has **currently 16 FTAs under operation**.

We would still have to work on improving our competitiveness, as in most trade sectors, India would be competing with the likes of China, ASEAN, Chile, Japan, Korea and New Zealand, which have already-functional FTAs with Australia.

o **APEC Partnership:** Time is also opportune for India's Asia-Pacific Economic Cooperation (APEC) membership, the goal of a free and open Indo-Pacific is incomplete without the presence of the world's fastest growing major economy in APEC.

It would further enhance India's role in global governance, encouraging greater economic reforms with improved domestic competitiveness, and economic integration with the region as a whole.

Also, with the deepening of Australia India bilateral ties, Australia can explore initiating a support lobby within APEC for India's membership.

RCEP

Recent

Japan hopes that India might reconsider joining the Regional Comprehensive Economic Partnership (RCEP) that it quit in 2019, indicating that India-Japan collaborations in other countries may be impacted if India continues to stay out.

o The Regional Comprehensive Economic Partnership **is a free trade agreement among the Asia-Pacific nations** of Australia, Brunei, Cambodia, China, Indonesia, Japan, South Korea, Laos, Malaysia, Myanmar, New Zealand, the Philippines, Singapore, Thailand, and Vietnam.

o Regional Comprehensive Economic Partnership was introduced during the 19th ASEAN meet held in November 2011. The RCEP negotiations were kick-started during the 21st ASEAN Summit in Cambodia in November 2012.

o RCEP was pushed by China in 2012 in order to counter another FTA that was in the works at the time: The **Trans-Pacific Partnership (TPP)**. The US-led TPP excluded China. However, in 2016 US President Donald Trump withdrew his country from the TPP. Since then, the RCEP has become a major tool for China to counter the US efforts to prevent trade with Beijing.

o RCEP was signed on 15th November, 2020 and is effective from 1st January, 2022.

o The countries account for a third of the world gross domestic product (GDP) and almost half the world's population, with the combined GDPs of China and India alone making up more than half of that. RCEP's share of the world economy could account for half of the estimated $0.5 quadrillion global (GDP, PPP) by 2050.

Objective

o RCEP **aims to create an integrated market with 16 countries**, making it easier for products and services of each of these countries to be available across this region.

o The negotiations are focused on the following: Trade in goods and services, investment, intellectual property, dispute settlement, e-commerce, small and medium enterprises, and economic cooperation.

Why did India decide against signing the RCEP trade deal?

o On November 4, 2019 India decided against joining the 16-nation Regional Comprehensive Economic Partnership (RCEP) trade deal, saying it was not shying away from opening up to global competition across sectors, but it had made a strong case for an outcome which would be favourable to all countries and all sectors.

o Prime Minister said "the present form of the RCEP agreement does not fully reflect the basic spirit and the agreed guiding principles of RCEP. It also does not address satisfactorily India's outstanding issues and concerns in such a situation."

o There was a fear in India that its industries would be unable to compete with China and Chinese goods would flood Indian markets. India's farmers were also worried given that they would be unable to compete on a global scale.

How could India have gained from signing the RCEP?

o A section of Indian industry felt that being part of RCEP would have allowed the country to tap into a huge market.

o Some like pharmaceuticals, cotton yarn and the services industry were confident of making substantial gains.

GIG ECONOMY

o In a gig economy, temporary, flexible jobs are commonplace and companies tend to hire independent contractors and freelancers instead of full-time employees.

o A gig economy undermines the traditional economy of full-time workers who ofte   n focus on their career development.

Understanding a Gig Economy

o In a gig economy, large numbers of **people work in part-time or temporary positions** or as independent contractors. The result of a gig economy is cheaper, more efficient services, such as Uber or Airbnb, for those willing to use them.

o People who don't use technological services such as the Internet may be left behind by the benefits of the gig economy.

o Cities **tend to have the most highly developed services** and are the most entrenched in the gig economy.

o A wide variety of positions fall into the category of a gig. The work can range from driving for Uber or delivering food to writing code or freelance articles. Adjunct and part-time professors, for example, are contracted employees as opposed to tenure-track or tenured professors. Colleges and universities can cut costs and match professors to their academic needs by hiring more adjunct and part-time professors.

Factors Behind a Gig Economy

o America is well on its way to establishing a gig economy, and estimates show as much as a third of the working population is already in some gig capacity as of 2021. Experts expect this working number to rise, as these types of positions facilitate independent contracting work, with many of them not requiring a freelancer to come into an office. Gig workers are much more likely to be part-time workers and to work from home.

o Employers also have a wider range of applicants to choose from because they don't have to hire someone based on their proximity. Additionally, computers have developed to the point that they can either take the place of the jobs people previously had or allow people to work just as efficiently from home as they could in person.

o Economic reasons also factor into the development of a gig economy. Employers who cannot afford to hire full-time employees to do all the work that **needs to be done will often hire part-time or temporary employees to take care of busier times or specific projects.**

o On the employee's side of the equation, people often find they need to move or take multiple positions to afford the lifestyle they want. It's also common to change careers many times throughout a lifetime, so the gig economy can be viewed as a reflection of this occurring on a large scale.

o In 2020, the gig economy experienced significant increases as gig workers delivered necessities to home-bound consumers, and those whose jobs had been eliminated turned to part-time and contract work for income. Employers will need to plan for changes to the world of work, including the gig economy, when the crisis has ended.

Criticisms of the Gig Economy

o While not all employers are inclined to hire contracted employees, the gig economy trend can make it harder for **full-time employees to develop in their careers since temporary employees are often cheaper to hire and more flexible in their availability.**

o Workers who prefer a traditional career path and the stability and security that come with it are being crowded out in some industries.

o For some workers, the flexibility of working gigs can **actually disrupt the work-life balance, sleep patterns, and activities of daily life.** Flexibility in a gig economy often means that workers have to make themselves available any time gigs come up, regardless of their other needs, and must always be on the hunt for the next gig. Competition for gigs has increased, too.

o In effect, workers in a gig economy are more like entrepreneurs than traditional workers. While this may mean greater freedom of choice for the individual worker, it also means that the **security of a steady job with regular pay, benefits—including a retirement account—and a daily routine that has characterized work for generations are rapidly becoming a thing of the past.**

o Lastly, because of the fluid nature of gig economy transactions and relationships, long-term relationships between workers, employers, clients, and vendors can erode. This can eliminate the benefits that flow from building long-term trust, customary practice, and familiarity with clients and employers.

o It could also discourage investment in relationship-specific assets that would otherwise be profitable to pursue since no party has an incentive to invest significantly in a relationship that only lasts until the next gig comes along.

Deemed benefits

o The gig economy has many benefits for both the employee and employer. An employer has access to a wide range of talent that they can hire.

o If the talent proves to be less than acceptable, there is no contract to keep the employee on or issues of letting them go. In addition, in a time when it has become difficult to attract full-time workers, employers can hire from the gig economy.

o In addition, hiring gig workers can be more affordable as companies don't have to pay for health insurance or other benefits.

o For employees, the gig economy's benefits include having the option to do multiple jobs, work from anywhere depending on the specific job, freedom, and flexibility in their daily routine.

♦ RISE IN CORE SECTOR OUTPUT

Recent

India's core sector output grew at the fastest pace in four months at 5.8% in February, compared with a 4% growth in January, with six of eight sectors registering growth. Crude oil and fertiliser production fell 2.2% and 1.4% year-on-year, respectively.

o In India, there are eight sectors that are considered the core sectors. The **eight-core sectors** of the Indian economy are electricity, steel, refinery products, crude oil, coal, cement, natural gas and fertilizers.

o These sectors have a major impact on the Indian economy and significantly affect most other industries as well. The eight industries have a combined share of 40.27 per cent in the Index of Industrial Production (IIP), which gives the growth rates of different industry groups in a specified period.

o **Before the IIP is released, the Index of Eight Core Industries (ICI) is prepared every month** and released by the **Office of the Economic Adviser (OEA), Department for**

Promotion of Industry and Internal Trade (DPIIT), and Ministry of Commerce & Industry.

o The ICI gives an indication of the production performance of the industries which are of a 'core' nature and measures the individual and collective performances of the production in these eight core industries.

o Components to calculate the ICI:

1. Coal – Coal production, excluding Coking coal.
2. Electricity – Electricity generation of thermal, nuclear, hydro, imports from Bhutan.
3. Crude Oil – Total crude oil production.
4. Cement – Production in large plants and mini plants.
5. Natural Gas – Total production of natural gas.
6. Steel – Production of alloy and non-alloy steel only.
7. Refinery Products – Total refinery production.
8. Fertilizer – Urea, ammonium sulfate, calcium ammonium nitrate, complex grade fertilizer, and single superphosphate, among others.

CAD INCREASES

Recent

*India's current account deficit (CAD) increased to **$23 billion or 2.7% of GDP** in the quarter ended December, 2021 from $9.9 billion (1.3% of GDP) in the previous quarter, according to data released by the Reserve Bank of India (RBI).*

CAD had touched $2.2 billion (0.3% of GDP) a year earlier, data showed.

What is Current Account Deficit?

o The current account measures the f**low of goods, services and investments into and out of the country.** The country runs into a deficit if the value of goods and services import exceeds the value of the export. The current account includes net income, including interest and dividends, and transfers, like foreign aid.

o A nation's current account maintains a record of the country's transactions with other nations, it comprises of following components:

▪ Trade of goods,
▪ Services, and
▪ Net earnings on overseas investments and net transfer of payments over a period of time, such as remittances

o A country with rising CAD shows that it has become uncompetitive, and investors may not be willing to invest there.

o In India, the Current Account Deficit **could be reduced by boosting exports and curbing non-essential imports such as gold, mobiles, and electronics**.

o A current account deficit is not always a problem. The Pitchford thesis states that a current account deficit does not matter if it is driven by the private sector. It is also known as **the "consenting**

adults" view of the current account, as it holds that deficits are not a problem if they result from private sector agents engaging in mutually beneficial trade.

o The formula to calculate CAD is:

Current Account = Trade gap + Net current transfers + Net income abroad
(Trade gap = Exports – Imports)

Why does CAD matter?

o The current account deficit is an important signal of competitiveness and the level of imports and exports. A large current account deficit usually implies some kind of disbalance in the economy, which needs correcting with the depreciation in the exchange rate and/or improved competitiveness over time.

o A current account deficit is financed by attracted capital inflows, for example, foreigners buying domestic assets. This means foreigners hold a greater claim on assets and dividends. The benefit of a CAD is that it allows higher levels of domestic consumption because we are buying from abroad.

o If an economy is running a current account deficit, it is absorbing **(absorption = domestic consumption + investment + government spending)** more than that it is producing.

o This can only happen if some other economies are lending their savings to it (in the form of debt to or direct/ portfolio investment in the economy) or the economy is running down its foreign assets such as official foreign currency reserve.

⚜ RISE IN EXTERNAL DEPT

Recent

*India's **external debt rose by $11.5 billion to $614.9 billion** in the three months ended December 2021, according to the Finance Ministry.*

*The **external debt to GDP ratio fell marginally to 20% at the end of December last year from 20.3% at the end of September 2021.***

o **Definition:** It refers to **money borrowed from a source outside the country**. External debt has to be **paid back in the currency in which it is borrowed**.

o **Description:** External debt **can be obtained from foreign commercial banks**, **international financial institutions** like IMF, World Bank, ADB etc and **from the government of foreign nations.**

o Normally these types of **debts are in the form of tied loans**, meaning that these have to be **used for a predefined purpose** as determined by a consensus of the borrower and the lender.

o **Government and corporations are eligible to raise loans from abroad**. These are in the form of external commercial borrowings.

o The **interest rate on foreign loans is linked to LIBOR** (London Interbank Offer rate) and the actual rate will be LIBOR plus applicable spread, depending upon the credit rating of the borrower.

Debt-to-GDP Ratio

o Debt-to-GDP ratio is the **ratio between a country's debt and its gross domestic product**. It is a reliable indicator on how capable a country is in paying its debts.

o Generally, a **low debt-to-GDP ratio is a measure of a healthy economy** that produces and sells goods and services without accumulating future debts.

o A debt-to-GDP ratio is an indicator on how much a debt a country owes and how much it produces to pay off its debts. Expressed in percentages, it is alternatively interpreted as the number of years needed in paying back the debt, in case the entire GDP has been allocated for debt repayment.

o The **indicator of a stable economy is the one where a country is able to pay off its external debts without external funds injection and steady economic growth**.

o On the other hand, a country that has problems in paying off its debts is an indicator of a high debt-to-GDP ratio. Extravagantly high debt-to-GDP ratios may deter creditors from lending money altogether.

o In the event there is a debt default on part of the country there will be a financial panic in domestic as well as international markets.

o The **higher a debt-to-GDP ratio, the higher the chances of default**. In the event of a war, stagnant economic growth or civil unrest, the economy of a country is slow to pick its pace at the time. So in order to stimulate the economy and boost demade, governments increase borrowing which inadvertently gives rise to a high-debt ratio.

What is a sustainable Debt-to-GDP Ratio?

o As per the World Bank and the International Monetary Fund (IMF) " a country can achieve sustainable external debt if its future and current external debt service obligations are met in full, without accumulating more debt and without compromising growth".

o According to these two institutions, external debt sustainability can be obtained by a country "by bringing the **net present value (NPV) of external public debt down to about 150 percent of a country's exports or 250 percent of a country's revenues**".

✦ TRADE DEFICIT WIDENS

Recent

*India's **trade deficit widened to $192 billion** in financial year 2021-22 (FY22) as imports hit a record high of $610 billion because the value of inbound petroleum shipments nearly doubled as compared to a year earlier.*

TOTAL MERCHANDISE TRADE

	Value in $ billion			% growth	
	Apr21–Mar22	Apr 20–Mar21	Apr19–Mar20	Apr 21–Mar 22–over Apr 20–Mar 21	Apr 21–Mar 22–over Apr 19–Mar 20
Exports	417.81	291.81	313.36	43.18	33.33
Imports	610.22	394.44	474.71	54.71	28.55
Deficit	192.41	102.63	161.35	87.49	19.25

IMPORTS VS EXPORTS

Value ($ billion), figures in brackets growth in %
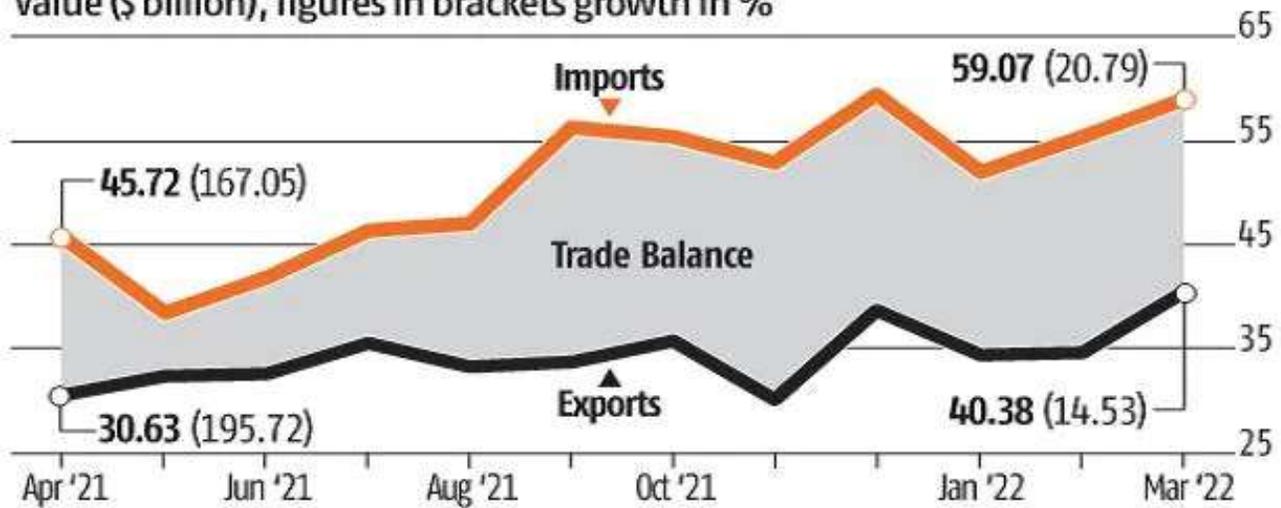
Source: Department of Commerce

- o The sharp 94.33 per cent jump in petroleum imports' value was because of the **rise in global crude oil prices as a result of the Russian invasion of Ukraine.**
- o The **share of petroleum imports out of India's total imports was 26 per cent in FY22**, preliminary data released by the commerce and industry ministry showed.
- o Apart from petroleum products, imports of electronic goods and gold grew by a third and resulted in widening of the trade defi it. The value of goods exported witnessed 40 per cent growth, hitting a record $417.8 billion and surpassing the target set by the government by 5 per cent, driven by higher demand for engineering goods, petroleum products, and gems and jewellery.
- o However, imports grew at a faster pace. India's merchandise imports in FY22 grew 54.71 per cent from $394.44 billion in FY21.

Trade Deficit

- o A trade deficit is an amount by which the **cost of a country's imports exceeds its exports**.
- o The trade deficit in goods shows a rise of demand in the economy.
- o It is a part of the Current Account Deficit.

Current Account Deficit

- o The current account records **exports and imports in goods and services and transfer payments**.
- o It represents a **country's transactions with the rest of the world** and, like the capital account, is a component of a country's Balance of Payments (BOP).
- o There is a deficit in Current Account if the value of the goods and services imported exceeds the value of those exported.
- o Major components are:

- ▪ Goods,

- Services, and
- Net earnings on overseas investments (such as interests and dividend) and net transfer of payments over a period of time, such as remittances.

o It is measured as a percentage of Gross Domestic Product (GDP). The formulae for calculating Current Account Balance is:

o Current Account Balance = Trade gap + Net current transfers + Net income abroad.
o Trade gap = Exports – Imports

DEPRECIATION OF RUPEE

Recent

The Indian rupee sank to a record low of almost 77 against the U.S. dollar as the deepening Russia-Ukraine conflict sent crude oil prices soaring to 14-year highs prompting safe-haven flows into the dollar.

1 USD to INR Rates from 1947-2021

Data Source: Reserve Bank of India (RBI) www.CompareRemit.com
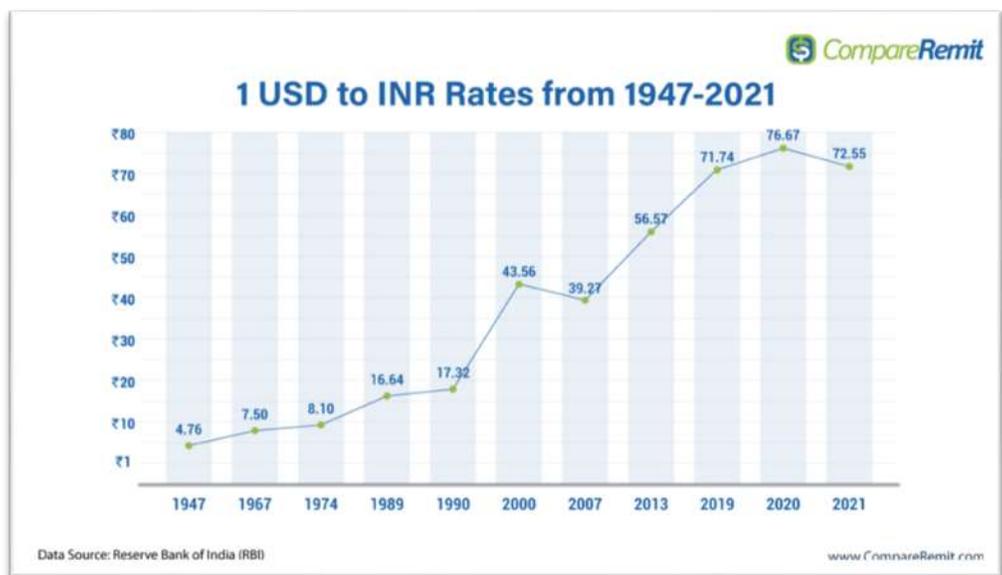
About Depreciation

o Currency depreciation is a fall in the **value of a currency in a floating exchange rate system**.
o Rupee depreciation means that the **rupee has become less valuable** with respect to the dollar.
o It means that the rupee is now weaker than what it used to be earlier.
o For example: USD 1 used to equal to Rs. 70, now USD 1 is equal to Rs. 76, implying that the rupee has depreciated relative to the dollar i.e. it takes more rupees to purchase a dollar.

Impact of Depreciation of Indian Rupee:

o Depreciation in rupee is a double-edged sword for the Reserve Bank of India.
o **Positive:** While a weaker currency may support exports amid a nascent economic recovery from the pandemic.
o **Negative:** It poses risk of imported inflation, and may make it difficult for the central bank to maintain interest rates at a record low for longer.

Appreciation vs Depreciation of Currency

o In a floating exchange rate system, market forces (based on demand and supply of a currency) determine the value of a currency.

o **Currency Appreciation:** It is an increase in the value of one currency in relation to another currency.

▪ Currencies appreciate against each other for a **variety of reasons**, including government policy, interest rates, trade balances and business cycles.

▪ Currency appreciation discourages a country's export activity as its products and services become costlier to buy.

o **Currency Depreciation**: It is a fall in the value of a currency in a floating exchange rate system.

▪ Economic fundamentals, political instability, or risk aversion can cause currency depreciation.

▪ Currency depreciation encourages a country's export activity as its products and services become cheaper to buy.

Devaluation and Depreciation

o In general, devaluation and depreciation are often used interchangeably.

o They both have the same effect – a fall in the value of the currency which makes imports more expensive, and exports more competitive.

o However, there is a difference in the way they are applied.

o A devaluation occurs when a country's central bank makes a conscious decision to lower its exchange rate in a fixed or semi-fixed exchange rate.

o A depreciation is when there is a fall in the value of a currency in a floating exchange rate.

Reasons for Current Depreciation of Indian Rupee

o **Record-High Trade Deficit**: India's trade deficit widened to an all-time high. This growing trade deficit is driven by a rebound in oil prices.

o **Policy divergence Between RBI and Federal Reserve**: The strengthening of USD in line with expectations of better growth in the US economy and favourable interest offered by the Federal Reserve (US' Central bank). The RBI has been continuously buying dollars to build its reserves and prepare itself for any volatility.

o **Outflow of Capital:** Foreign capital exodus from stocks have led to the benchmark S&P BSE Sensex Index falling by about 10% below an all-time high touched in October 2021.

SOCIETY

(Social Issues and Social Justice)

SOCIAL SECTOR SCHEMES

⚜ INTEGRATED CHILD DEVELOPMENT SERVICES (ICDS)

o Integrated Child Development Services (ICDS) is an Indian government welfare programme that provides **food, preschool education, and primary healthcare to children under 6 years of age and their mothers.**

o The scheme was started in **1975** and aims at the holistic development of children and empowerment of mother.

o It is a **Centrally-Sponsored scheme**.

o The scheme primarily runs through the **Anganwadi centre**.

o The scheme is under the **Ministry of Women and Child Development**.

Objectives

o To improve the nutritional and health status of children in the age-group 0-6 years;

o To lay the foundation for proper psychological, physical and social development of the child;

o To reduce the incidence of mortality, morbidity, malnutrition and school dropout;

o To achieve effective co-ordination of policy and implementation amongst the various departments to promote child development; and

o To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

Provisions and Services

Integrated Child Development Services is Centrally-Sponsored and will provide the following six services to the beneficiaries:

o Supplementary Nutrition (SNP)

o Health & Nutrition Check-Up

o Immunization

o Non-Formal Education for Children in Pre-School

o Health and Nutrition Education

o Referral services

o These services are provided from Anganwadi centres established mainly in rural areas and staffed with frontline workers.

NATIONAL RURAL HEALTH MISSION (NRHM)

o The National Rural Health Mission (NRHM) was launched on 12th April 2005, to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups.

o The essence of NRHM is a health delivery system that functions independently, **is community-owned and decentralized.**

o The mission also aims to deliver constant support to those who contribute to the social determinants of health.

o Basic objectives to implement NRHM are:

- Reduction in infant mortality rate and maternal mortality rate
- Ensuring population stabilization
- Prevention and control of communicable and non-communicable diseases
- Upgrading AYUSH(Ayurvedic Yoga Unani Siddh and Homoeopath) for promotion of a healthy lifestyle.

Major initiatives under NRHM

ASHA

o The **Accredited Social Health Activists** aka ASHAs are the volunteers that engage in this mission that will establish a link between the **health system and the targeted community**. More than 8.84 lakh of these community health volunteers have contributed to this mission.

o **ASHA is the first port of call** for any health-related demands of deprived sections of the population, especially women and children, who find it difficult to access health services in rural areas.

o This programme is expanding across States and has particularly been successful in bringing people back to the Public Health System. It has also increased the utilization of outpatient services, diagnostic facilities, institutional deliveries and inpatient care.

Rogi Kalyan Samiti (Patient Welfare Committee)/Hospital Management Society:

o It is a **registered society that acts as a group of trustees** to manage the affairs of the hospitals.

o A united fund looks after the funding and other financial assistance for these communities that are involved in patient welfare activities.

United Grants to Sub-Centres

o It has given new confidence to auxiliary nurse midwives (ANMs) in the field who are better equipped now with Blood Pressure measuring equipment, Stethoscope, weighing machine, etc.

o They can actually undertake proper antenatal care and other health care services.

o Another important tool of community empowerment is the Village Health Sanitation and Nutrition Committee (VHSNC) which works at the grassroots levels.

Health Care Service Delivery

o Health Care Service Delivery requires intensive human resource inputs. As can be seen from various surveys, there is an enormous shortage of human resources in the public health care sector in the country.

o NRHM has attempted to fill the gaps in human resources by providing nearly 1.7 lakh people for health services to States including 8,871 Doctors, 2025 Specialists, 76,643 ANMs, 41,609 Staff Nurses, etc. on contractual basis.

o Many unserved areas have been covered through **Mobile Medical Units (MMU).** So far 2024 MMU are operational in 459 districts across the country.

o The government also provides free ambulance services in every nook and corner of the country connected with a toll-free number and available within 30 minutes of the call. Over 12,000 basic and emergency patient transport vehicles have been provided under NRHM.

Janani Shishu Suraksha Karyakram

o In order to promote universal healthcare, the government started the Janani Shishu Suraksha Karyakram (JSSK) initiative which provides free to & fro transport, free drugs, free diagnostics, free blood, free diet to pregnant women who come for delivery in public health institutions and sick new-borns.

NATIONAL URBAN HEALTH MISSION (NUHM)

o The National Urban Health Mission (NUHM) as a **sub-mission of National Health Mission (NHM)** will meet the **health needs of the urban population** with a focus on urban poor, by making available to them essential primary health care services and reducing out of pocket expenses for treatment.

Objectives and Components

o Availability of resources for addressing the health problems in urban areas, especially among the urban poor.

o Develop a health care system based on the specific health needs of the city. This system will take care of vulnerable and poor sections of the urban population and meet the diverse medical and health needs.

o Partnership with the community for more proactive involvement in planning, implementation and monitoring of health activities.

o Growth in urban population is directly proportional to their health risks. These challenges need to be fixed by a mechanism involving different institutions and management systems.

o Framework for partnership with NGOs, for profit and not for profit health service providers and other stakeholders.

o NUHM would cover all cities/towns with a population of more than 50000. Towns below 50000 populations will be covered under the National Rural Health Mission (NRHM).

Components of NUHM

Population Policy

o The National Population Policy (2000) not only focused on the unmet needs of contraception but also stressed the need for integrated service delivery for basic reproductive and child health care.

o Accordingly, the long term goals set under this policy envisaged a reduction in

▪ Total Fertility Rate (TFR) to replacement levels,

- Infant Mortality Rate of less than 30/1000 live births and
- Maternal Mortality Ratio to less than 100/100,000 live births by 2010

Jansankhya Sthirata Kosh (JSK)

o The National Population Stabilisation Fund was constituted under the **National Commission on Population in July 2000.**

o Subsequently, it was transferred to the **Department of Health and Family Welfare** in April 2002.

o It was renamed and reconstituted as **Jansankhya Sthirata Kosh (JSK) under the Societies Registration Act (1860)** on June 2003.

Geographical Information System (GIS) Mapping

o As part of this initiative, JSK mapped 450 districts in India through a unique amalgamation of GIS maps and Census data.

o The mapping gives a picture of each district, its subdivisions and the population of every village along with the distance to the health facility.

o The maps highlight inequities in coverage down to the village level to enable resources to be targeted where they are needed the most.

Funding Pattern of NUHM

o The Funding necessary for this scheme is split between the Central government and the State government.

o The **centre-state funding is split in 75:25 ratio** for all the States except North-Eastern states including Sikkim and other special category states like Himachal Pradesh, Uttarakhand and J&K.

o For these states, the centre-state funding will be split in 90:10 ratio.

o The Programme Implementation Plans (PIPs) sent by the states are appraised and approved by the Ministry.

NATIONAL CHILD LABOUR PROJECT

o It is a Central Government Scheme which has been devised to tackle the issue of child labor is a more effective manner by focussing on specific target ideas, identifying the victims, withdrawing them from hazardous situations, focussing on their rehabilitation and meanwhile spreading awareness on the functionalities of NCLP and the other agencies on child labour to the families of the child labourers.

Objectives

It aims at the expulsion of child labour in all forms possible through a sequential basis of:

o Identification of children in child labour in the project area.

o Withdrawing the identified children.

o Preparation of the withdrawn children for introduction to mainstream education by providing necessary vocational training.
o Ensuring that they're benefitted by the multitude of services provided by the different governments and agencies.
o It aims at the withdrawal of adolescent children from hazardous situations or occupations by
o Identifying all adolescents and withdrawing them from the project area.
o Facilitating training programmes for such adolescents through the skill development schemes which are currently existing.
o It aims at raising awareness amongst the target communities and the other stakeholders regarding child labour about the functionality of NCLP.
o To create a Child Labour Monitoring, Tracking and Reporting System to stay updated with the situation.

Target Group

o The scheme focuses on all the child workers **below the age of 14** in the target areas, **adolescent workers below 18 years of age** engaged in hazardous occupations and also on the families of the child workers in that specific target areas.
o The children would be eased into local schools after providing necessary bridging programmes.
o The adolescent children in hazardous work would be given skill enhancement training and shifted to non-hazardous work.
o The delivery of income/stipend, employment or social security to the families of child workers will be ensured by the government. The tracking of the rescued child workers will be done to follow up for evaluation of impact.
o The child labour laws will be stepped up according to the requirement in the required area.

NCLP Highlights/Features:

o The Government contributes to the identification, classification, eradication, and withdrawal of children and adolescents from hazardous occupations.
o Successfully mainstreaming the rescued children into proper local schools and affiliating them with Sarva Shiksha Abhiyan (SSA).
o The adolescents will be provided with other skill enhancement training and transferred to permitted occupations.
o Better awareness programs for the education of communities and the Indian public as a whole with the help of enhanced abilities.
o Compensatory measures for the families who are releasing their children from working and allowing them to attend training or schools.
o Mothers of such victimized children are often organized into self-help groups (SHG's).

PENCIL PORTAL

o A unique online portal was launched in 2017, by the government, called PENCIL (Platform for Effective Enforcement for No Child Labour).

o It had been created under the NCLP scheme:

- To ensure effective and easy implementation of the scheme.
- It consists of a **Child Tracking System** and a Complaint corner.
- The portal can connect the Central Government to respective State Governments, districts, to all project societies and finally to the general public.
- The portal allows anyone to file a complaint **regarding child labour**.
- The received complaints are automatically assigned to the concerned Nodal officer by the system immediately upon receiving the complaint to take further actions which might be necessary.

LAWS AGAINST CHILD LABOUR

o The government has laid down multiple rules governing the enforcement of child labour and is taking active measures to eradicate this practice.

Gurupadswamy Committee

o It was a statutory committee formed by the Government of India in 1979, which found that the inextricable reason behind child labor in India was linked directly to Poverty.

o The committee's findings and analysis were then utilized to enact the Child Labour (Prohibition & Regulation) Act, 1986 by the union government.

Child Labour (Prohibition & Regulation) Amendment Act, of 2016

o It is an amendment of the Child Labour (Prohibition & Regulation) Act, 1986 which has placed a complete prohibition on the employment of underage children, especially in hazardous situations or occupations.

o It has also interconnected the prohibition of employment with access to free education as per the Right to Education Act of 2009.

o India was the 170th member of the International Labour Organisation (ILO) to agree with **Convention No. 138**. This convention requires member parties to set a minimum age under which no person should be employed.

o India also agreed with **Convention No. 182** which requires state parties to eliminate and prohibit any forms of extreme child labour activities such as trafficking, use of children in armed conflict, prostitution and in illicit activities.

INDUS Project

o Government of India and the US Department of Labour had jointly collaborated to form the INDUS Project which aimed at preventing and eliminating child labourers, especially from hazardous occupations.

o It was developed under **ILO-IPEC(International Labour Organization- International Programme on the Elimination of Child Labour).**

National Child Labour Project (NCLP) Scheme

o This is a scheme by the central government of India to facilitate rehabilitation of child labourers and to aid their introduction to formal education with vocational training at NCLP Centres.

NATIONAL NUTRITION MISSION

o **Poshan Abhiyaan**, also known as the National Nutrition Mission (NNM), was launched in 2018 (although the programme was being implemented in 2017) by the Government of India with the aim of tackling the malnutrition problem prevalent in India.

o The **chief objective of the mission** is to reduce the level of under-nutrition and also enhance the nutritional status of children in the country.

o The mission is a multi-ministerial initiative and aims at removing malnutrition from the country by 2022.

o Poshan Abhiyaan is India's flagship scheme to improve the nutritional outcomes of adolescents, children, pregnant women and lactating mothers.

o The mission leverages technology and convergence between various modules and departments.

o The term 'Poshan' in the name of the programme stands for **'Prime Minister's Overarching Scheme for Holistic Nutrition.**

o The programme has specific targets for reducing stunting, anaemia, under-nutrition and low birth weight.

o According to **'Mission 25 by 2020'**, the National Nutrition Mission aims to achieve a reduction in stunting from **38.4% to 25% by 2022.**

o The mission also encompasses mapping of various other schemes related to malnutrition and enabling synergies through ICT-based real-time monitoring system, robust convergence between the schemes, incentivising states and UTs for meeting the set targets, and optimising Anganwadi centres' functioning, apart from conducting social audits.

o These other schemes include the **Pradhan Mantri Matru Vandana Yojana (PMMVY), Janani Suraksha Yojana, Scheme for Adolescent Girls (SAG), Swachh Bharat Abhiyaan, PDS, National Health Mission, etc.**

o For Anganwadi centres, the mission envisages the following:

▪ Giving incentives to Anganwadi Workers (AWWs) for using IT-based tools.

▪ Elimination of registers used by AWWs.

▪ Measuring the height of children at Anganwadi centres.

o Another component of the mission is the gradual scaling up of the interventions under the World Bank assisted Integrated Child Development Services (ICDS) Systems.

o The implementing agency is the **Ministry of Women and Child Development, GOI.**

o The NITI Aayog also plays a pivotal role in the mission.

o The **National Council on India's Nutritional Challenges**, which has been set up under the Poshan Abhiyaan, has the **Vice Chairperson of NITI Aayog as its Chairperson**.
o The council is also called the **National Council on Nutrition or NCN**.
o The NCN offers policy directions to address nutritional challenges and review programmes for the same.
o It is a national-level coordination and convergence body on nutrition.

Specific Targets of NNM

The National Nutrition Mission aims at achieving the following:

o Reduce stunting by 2% annually.
o Reduce under-nutrition by 2% annually.
o Reduce anaemia by 3% annually.
o Reduce low birth weight by 2% annually.

NAI ROSHNI

o Nai Roshni – The **Scheme for Leadership Development of Minority Women** was implemented in 2012-13.
o It comes under the **Ministry of Minority Affairs**.
o It is a welfare scheme for the development of minority women in order to inculcate confidence and empower them by providing knowledge and techniques.

Objectives

o Nai Roshni Scheme is a Government welfare scheme launched to empower minority women with knowledge, basic techniques and tools which would help them interact with government banks and other institutions on all levels.
o The scheme has been implemented through NGOs, civil societies and government institutions.
o Minority women can apply for the scheme online as well.
o The scheme helps in fighting different social stigmas such as poverty, as women and children are the worst sufferers of poverty.
o It empowers the minority women to stand up for their rights and help them grow economically thus strengthening civil society.
   Target Group
o Muslim, Sikh, Christian, Buddhist, Zoroastrian (Parsi) and Jain women notified under Section 2 (c) of the National Commission for Minorities Act, 1992 come under the target group.
o However, to further increase the strength of the mosaic of plurality in society and bring about solidarity and unity through their own efforts to improve their lot, the scheme permits a mix of women from non-minority communities not exceeding 25% of a project proposal.
o Efforts should be made by the organization so that a representative mix of women comes up from SCs/STs/OBCs.
o Also, women with disabilities and other communities are included within this 25% group.

PRADHAN MANTRI MATRITVA VANDANA YOJANA (PMMVY)

o The Pradhan Mantri Matritva Vandana Yojana (PMMVY) was launched in 2017 as a flagship maternity benefits programme of the Government of India.

o Earlier it was known as the **Indira Gandhi Matritva Sahyog Yojana** and is run under the aegis of the Ministry of Women and Child Development.

o The scheme is **aimed at pregnant or lactating women aged 19 years or above for the first live birth**. The programme provides partial compensation for wage loss during childbirth and afterwards during childcare.

o It also **aims to provide information on good feeding and nutrition** for mother and child pursuant to the National Food Security Act, 2013.

o PMMVY is implemented through a centrally deployed Web Based MIS Software application and the main point of implementation would be the Anganwadi Centre (AWC) and ASHA/ ANM workers.

Objectives

o Providing cash compensation against wage loss so that the mother can take adequate rest before and after the birth of the first living child.

o Promoting good nutrition and feeding practices to reduce infant mortality and malnutrition. It would also promote healthier behaviour among pregnant/lactating mothers.

o Promoting the use of health services and institutional care to reduce the risk of disease.

Beneficiary List

o Pregnant/Lactating Mothers except those who are employed with the Central Government, Public Sector Units or State Governments or those who receive similar benefits from similar laws for the time being.

o Women whose pregnancies commenced after 01.01.2017 and this would be the first child in the family.

Provisions

o Rs 5000 in three instalments on fulfilling the respective conditionality, viz. early registration of pregnancy, ante-natal check-up and registration of the birth of the child and completion of the first cycle of vaccination for the first living child of the family.

o The PM Matritva Vandana scheme also asks mothers to:

▪ Breastfeed for the first six months and give the child complementary food after that
▪ Vaccinate the child with DPT and Polio vaccine
▪ Attend two counselling sessions when the child is between 3-6 months old.

o The mechanism through which the Government of India finances this scheme is as grant in aid funding to state governments, which in turn handle the actual implementation of the scheme. It was relaunched in 2014 as Matritva Sahyog Yojana in 2014 and took its present form in late 2016.

Other Schemes Focussing on Nutritional and Health Aspects of Women:

Integrated Child Development Services (ICDS) Scheme

o The scheme provides specific interventions targeted towards the vulnerable groups including children below 6 years and women.
o It is being implemented by the Ministry of Women and Child Development.

Poshan Abhiyaan

o Launched in March 2018, the goal of Poshan Abhiyaan is to achieve improvement in the nutritional status of Children (0-6 years) and Pregnant Women and Lactating Mothers in a time-bound manner.

Kudumbashree in Kerala

o It was launched in Kerala in 1998 to wipeout absolute poverty through community action.
o It is the largest women empowering project in the country.
o It has three components i.e., microcredit, entrepreneurship and empowerment.

Indira Gandhi Matritva Sahyog Yojna (IGMSY)

o The scheme aims to contribute to a better enabling environment by providing cash incentives for improved health and nutrition to pregnant and lactating mothers.
o It is being implemented by the **Ministry of Women and Child Development**.

PM-YUVA

o Pradhan Mantri Yuva Udyamita Vikas Abhiyan (PM-YUVA).
o It is a centrally-sponsored scheme related to entrepreneurship education and training.

Objectives

o The development and education of entrepreneurship to all citizens **free of cost through Massive Open Online Courses (MOOCs)** and eLearning systems.
o The designing of assessment and certification mechanism for the same.
o To equip institutes (schools and colleges) to help them deliver entrepreneurship educational programmes of global standards.
o Also to focus on social entrepreneurship promotion.
o The creation of an online web-based platform that connects entrepreneurs, investors, financial institutions, and business services such as legal, accounting, HR, and technology services.
o The setting up of a national mentor network for budding entrepreneurs.
o Create a network of incubators, credit agencies, business service providers, and accelerators.
o Establishment of a **National Entrepreneurship Resource** and Coordination Hub to coordinate and support entrepreneurship development programmes.
o The creation of a culture of dynamic entrepreneurship by way of branding and the media.
o Promote entrepreneurship research and advocacy.

o Include social entrepreneurship awareness programmes for the marginal sections like SC/ST and minority.

SANKALP and STRIVE

o The Cabinet Committee on Economic Affairs has approved two new schemes in 2019: Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) and Skill Strengthening for Industrial Value Enhancement (STRIVE) to boost the Skill India Mission.
o Both are central sector with half of the scheme outlay as loan assistance from the World Bank.

Objectives of SANKALP:

o SANKALP intends to set up Trainers and Assessors academies with self-sustainable models.
o Additional training academies will also be set up under the scheme.
o The focus will be on greater level of decentralization in skill planning through institutional strengthening at the state level, that includes setting up of State Skill Development Missions (SSDMs) and allow the states to come up with State and District level Skill Development Plans.
o It aims at improving the inclusion of marginalized communities including Persons with Disabilities (PwD), Scheduled Castes (SCs), Scheduled Tribes (STs) and also women for providing skill training opportunities.
o A skilling ecosystem will be created, such that it will support the country climb up the ladder in the Ease of Doing Business Index.

Objectives of STRIVE:

o STRIVE scheme **aims at developing a powerful mechanism for delivering training for quality skill development** by strengthening the institutions like National Skill Development Agency (NSDA), National Skill Development Corporation (NSDC), SSDMs, Sector Skill Councils etc.
o By involving Industrial clusters, business association and Small Scale Industries, the scheme intends to incentivize Industrial Training Institutes (ITIs) to improve the overall performance.
o Both the schemes will work towards increasing the aspirational value of skill development programs by increasing the marketability of skills, through better industry connect and quality assurance.

SCHEME FOR ADOLESCENT GIRLS (SAG)

Scheme for Adolescent Girls Need

o Adolescence is a crucial phase in the life of a human being, especially women. At this stage, various emotional and physical changes happen in a girl and vital interventions at this stage can help the individual develop positive attitudes towards health and well-being.
o Lack of nutritional food and healthy & hygienic practices can hamper the growth and development of a girl and hinder her from fully achieving her potential.
o It is with this intent that the SAG was envisaged.

About

- The Scheme for Adolescent Girls (SAG) is a **Centrally Sponsored Scheme** of the government which targets adolescent girls in the age group of 11 to 14 years.
- The Scheme for Adolescent Girls (SAG) was devised in **2010** as a special intervention for adolescent girls of the age group 11 – 14 years to break the intergenerational life-cycle of nutritional and gender disadvantage and offer a supportive environment for the self-development of adolescent girls in the country.
- SAG focuses on **out-of-school adolescent girls** of the said age group.
- The scheme was rolled out in 2011 under the **Ministry of Women and Child Development**.
- The scheme was previously known as Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG or SABLA).
- The scheme replaced the **Nutrition Programme for Adolescent Girls (NPAG)** and **Kishori Shakti Yojana (KSY).**
- The scheme is implemented by using the Anganwadi services of the umbrella ICDS Scheme through Anganwadi Centres (AWCs).
- It is a centrally sponsored scheme implemented by the state/UT governments.
- The scheme is being implemented in a phased manner with the number of beneficiary districts increased with every phase.
- In **March 2021, this scheme was included under the Mission POSHAN 2.0.**

Objectives

- The overarching objective of the scheme is to provide nutrition and enhance the social and economic status of the adolescent girls in the age group of 11 to 14 years. The idea is to facilitate adolescent girls to become self-reliant and aware citizens of the country by educating and empowering them.
- Enable the Adolescent Girls for **self-development and empowerment**.
- **Improve the nutrition and health status** of Adolescent Girls.
- Promote awareness of health, nutrition and hygiene.
- Support out of school Adolescent Girls to successfully transition back to formal schooling or bridge learning/skill training.
- Upgrade their home-based skills and life skills.
- Provide information/guidance about existing public services such as Primary Health Centres, Rural Hospitals/CHCs, Post Office, Bank, Police Station, etc.

Services

Under the scheme, the following services are provided to the beneficiaries. The services are divided into the nutrition and non-nutrition components.

- **Nutrition provision**: Every out-of-school registered beneficiary would be provided with supplementary nutrition similar to that of pregnant women and lactating mothers under ICDS containing 600 calories, 18-20 grams of protein and micronutrients for 300 days in a year. This nutrition would be provided in the form of Take Home Rations or Hot Cooked Meals.

o **Iron and Folic Acid (IFA) supplementation**: Along with IFA tablets, the Adolescent Girls would also be offered information on food fortification, advantages of supplementation by IFA tablets for combating iron deficiency anaemia, and dietary diversification.

o **Health check-up and Referral services**: General health check-up of all Adolescent Girls at least once in three months.

o **Nutrition & Health Education (NHE):** Sustained information on health and nutrition will help enhance the general health of the beneficiaries and also their families which will help to break the vicious intergenerational cycle of malnutrition. This is given in the AWC jointly by the ICDS and health functionaries and resource persons/field trainers from NGOs/Community Based Organisations (CBOs). Information given includes information promoting healthy traditional practices while dispelling myths, good sanitation practices, safe drinking water habits, healthy eating and cooking habits, managing menarche, personal hygiene, etc.

o Mainstreaming out-of-school girls to join formal schooling, bridge course/skill training: Under this, out-of-school Adolescent Girls are identified and provided guidance to enrol or restart mainstream school. Families are provided with information on the benefits of a formal education. Under this, female role models are also highlighted for girls to emulate.

o **Life Skill Education, home management, etc.:** Beneficiaries are offered guidance on life skills and also home management (home maintenance, budgeting, saving, running the household, gender sensitivity, schooling of children, etc.) so that they can become productive members of society when they grow up.

o **Counseling/Guidance on accessing public services:** Awareness talks and visits are arranged in collaboration with PRI members, NGOs/CBOs, health functionaries, police personnel, bank officials, post office officials, school authorities etc.

KISHORI HEALTH CARD

o The **Kishori Health Cards** are maintained by the States in Anganwadi Centres (AWCs) to record the Adolescent Girls' height, weight, BMI (body mass index), along with other services provided under the SAG scheme.

o The card also carries the details of the achievements or outcomes under the scheme.

o **Kishori Diwas**: A special day is to be observed as 'Kishori Diwas' once in three months. This would typically be the day on which the general health check-up of the girls would be carried out. On this day, Information Education and Communication (IEC) would be imparted to the community, parents, etc.

UMMID

o The acronym UMMID stands for **Unique Methods of Management and Treatment of Inherited Disorders.**

o Along with UMMID, the Department of Biotechnology also flagged off National Inherited Diseases Administration (NIDAN) Kendras.

o Ministry of Science & Technology launched it.

o It is an initiative of Department of Biotechnology

Aims

Establishment of NIDAN Kendras to provide the following services:

o Counselling
o Prenatal testing and diagnosis,
o Management, and multidisciplinary care in Government Hospitals
o Emphasising on the importance of genetic studies, the scheme aims to produce skilled clinicians in Human Genetics
o To prevent/cure inherited genetic diseases, the scheme aims to screen test pregnant women and newborns in the hospitals of aspirational districts.

Five NIDAN Kendras to be established at the below-mentioned five hospitals to provide clinical care:

o NRS Medical College-Kolkata
o AIIMS- Jodhpur
o Army Hospital Research & Referrals- Delhi
o Lady Harding's Medical College- New Delhi and
o NIMS- Hyderabad

To train the clinicians, the support of the following training centres have been taken:

o Madras Medical Mission- Chennai
o SGPGIMS- Lucknow
o CDFD – Hyderabad
o AIIMS- New Delhi
o MAMCNew Delhi
o NIIH- Mumbai and
o CMC Vellore

o Seven aspirational districts that have been chosen for the screen testing of 10,000 pregnant women and 5000 newborns are:
o Mewat, Yadgir, Haridwar, Washim, Ranchi, Shrawasti and Nandurbar.

UMMID – What are inherited genetic disorders?

o It is referred to as a health problem that is caused by abnormalities in the genomes of the newborn.
o A genetic disorder is a disease caused in whole or in part by a change in the DNA sequence away from the normal sequence.
o Genetic disorders can be caused by a mutation in one gene (monogenic disorder), by mutations in multiple genes (multifactorial inheritance disorder), by a combination of gene mutations or by damage to chromosomes.
o Some of the examples of Genetic disorders are Sickle Cell Anemia, Heart Disease, High Blood Pressure, Alzheimer's Disease, Diabetes, Cancer, and Obesity.

MATERNAL MORTALITY RATE

Recent

Kerala tops in maternal and child health.

Details

o Kerala tops in maternal and child health, recording the lowest Maternal Mortality Ratio (MMR) of **30 (per one lakh live births) in the country**.

o Kerala is way ahead of the **national MMR of 103.**

o According to the latest Sample Registration System (SRS) special bulletin on maternal mortality in India (2017-19), released by the office of the Registrar General of India, Kerala's MMR has dropped by 12 points.

o According to the date, Kerala has achieved the target based on the U.N. Sustainable Development Goals, of an MMR of 30 by 2020.

About Maternal mortality in India:

o Maternal mortality is the maternal death of a woman **during pregnancy or after pregnancy, including post-abortion or post-birth periods.**

o Different countries and cultures have different rates and causes for maternal death.

o Within India, reason vary from healthcare access between regions and in socioeconomic factors, accordingly, there is also variation in maternal deaths for various states, regions, and demographics of women.

o Women die as a result of complications during and following pregnancy and childbirth or abortion.

o Most of these complications develop during pregnancy are easily preventable or treatable.

o Other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of a woman's care.

o India **contributes one-fifth** of the global burden of absolute maternal deaths.

o 94% of all maternal deaths occur in low and lower middle-income countries.

o India's present MMR is below the Millennium Development Goal (MDG) target and puts the country on track to achieve **the Sustainable Development Goal (SDG) target of an MMR below 70 by 2030.**

Steps taken by the Government

o **Janani Suraksha Yojana (JSY)** implemented under the National Health Mission (NHM), it is a safe motherhood intervention promoting institutional delivery among pregnant women especially with weak socio-economic status i.e. women from Scheduled Castes, Scheduled Tribes and Below Poverty Line (BPL) households.

o **PM Matru Vandana Yojana (PMMVY)** Providing Cash incentives for improved health and nutrition to Pregnant and nursing mothers.

o **Scheme for Adolescent Girls** aims at girls in the age group 11-18, to empower and improve their social status through nutrition, life skills, home skills and vocational training.

- o **Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)** provides pregnant women free of cost assured and quality Antenatal Care on the 9th day of every month.
- o **Mahila Swadhar Greh** to provide relief and rehabilitation to destitute women and women in distress.
- o **Ujjawala scheme**, a comprehensive Scheme for the prevention of trafficking and for rescue, rehabilitation, reintegration and repatriation of victims of trafficking for commercial sexual exploitation.
- o **One-Stop Center (OSC)** to facilitate access to an integrated range of services including medical aid, police assistance, legal aid/ case management, psychosocial counselling and temporary support services to women affected by violence.
- o **Extending Maternity Leave duration** From 12 weeks to 26 weeks.
- o **Surakshit Matratva Ashwasan (SUMAN)** aims to provide assured, dignified, respectful and quality healthcare at no cost and zero tolerance for denial of services for every woman and newborn visiting the public health facility to end all preventable maternal and newborn deaths.
- o **LaQshya** aims to improve the quality of care in labor room and Maternity operation theatres to ensure that pregnant women receive respectful and quality care during delivery.

Way Forward

- o Ensure **equal access** to Nutrition, Health, and education.
- o Need to adopt a **Life Cycle approach** to empowerment of girls and women.
- o **Recognise** Women's Reproductive Rights, Focus on Young mothers and adolescent unmarried girls.
- o **Enforcement** of Child marriage prevention programs, Emphasis on safe delivery in institutional set ups.
- o **Adolescent girls' programmes** should focus on protecting girls from early and unwanted childbearing.
- o Encourage young women to **delay marriage** age by promoting education and skill development.
- o Encourage **young couples to practice family planning** and delay their first child.
- o **Train Social workers** in hospitals, and Community health workers under the national health mission.
- o **Improve mental health services** for women, address stigma, discrimination and violence against HIV-positive women and female sex workers.
- o **Address health problems of women** in the informal sector, Improve water and sanitation Situation for women.
- o **Universal availability of maternity benefits and Childcare facilitie**s to all women workers across the organized and unorganized Sectors.
- o **Flexible designs** for the Schemes, depending on local needs and region-Specific issues.
- o **Adopt Need-based Schemes,** Pro-active Publicity of Schemes, Creation of Simple, local language materials to explain.
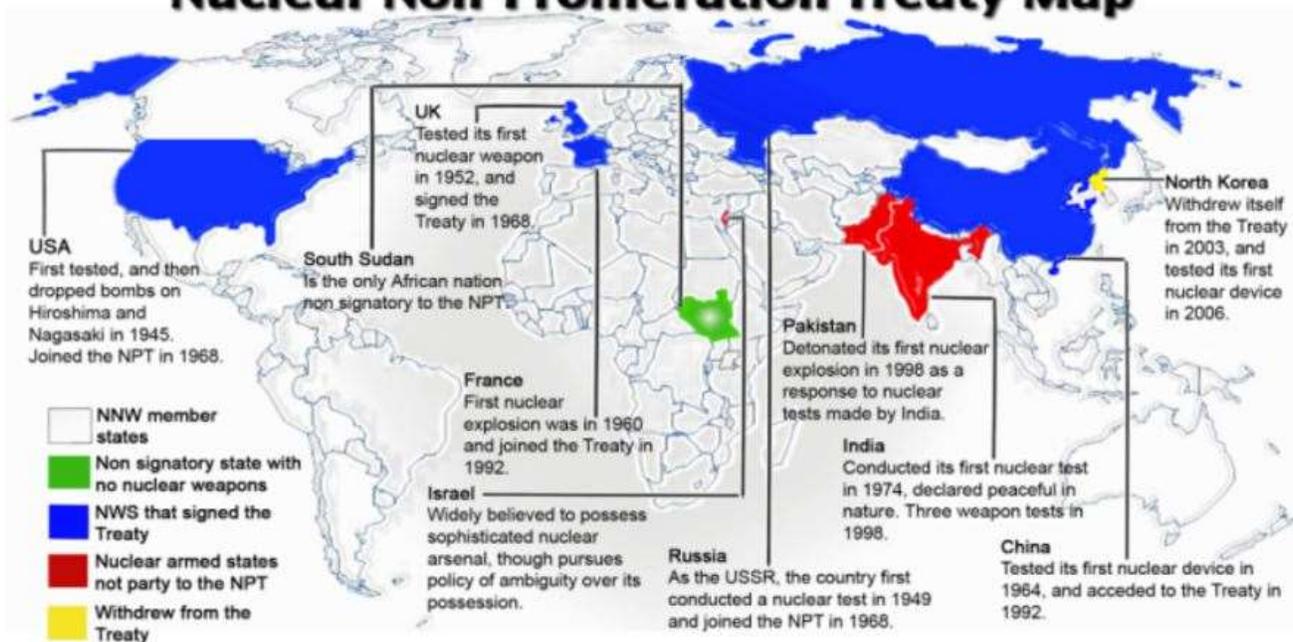
SECURITY
(Internal and External)

✦ NON-PROLIFERATION TREATY (NPT)

o The Treaty on the Non-Proliferation of Nuclear Weapons, otherwise commonly known as the **Non-Proliferation Treaty or NPT,** is an international treaty with an objective to limit the escalation of a nuclear arms race and the technology related to it.

o Further goals of the treaty also included promoting cooperation in the peaceful use of nuclear energy and achieving complete nuclear disarmament.

o The treaty was **drawn, drafted and negotiated by the Eighteen Nation Committee** on Disarmament, an UN-sponsored organisation based in Switzerland.

o On **August 6th and 9th,1945**, the twin Japanese cities of Hiroshima and Nagasaki were bombed by the United States with a powerful and terrible weapon – The Atom Bomb. The act brought about the end of World War 2, but with a terrible price. Total casualties amounted between 129,000 to 226,000 between the two cities, with countless other injured and suffering from radiation sickness.

o The after-effects of the bombings were a serious cause of concern among world powers, along with potential misuse of the weapon. This concern led to calls for a safeguard to ensure a Nuclear Arms Control was in place. Thus it was in **1961, a U.N resolution called for a treaty to prevent an arms race for nuclear weapons.** This treaty would go on to become the Non-Proliferation Treaty.

World map showing nuclear weapons states (Image by British American Security Information Council)

Who has signed the Non-Proliferation treaty?

o Ever since it came into effect since 1970 after it was opened for signing in 1968, the Non-Proliferation Treaty **has 187 nations who are a party to it** – more than any other arms limitation treaty.

o The Non-Proliferation Treaty **prohibits the nations who don't have nuclear weapons from acquiring them,** at the same time **prohibiting the nuclear states from helping others in acquiring the weapons.** At the same time **working towards total disarmament**.

o The **International Atomic Energy Agency**, which is the **successor of the United Nations Atomic Energy Commission verifies the compliance with the treaty**. The compliance, in turn, is **enforced by the United Nations Security Council**.

o There are a total of nine nations that possess nuclear weapons. Five of the nations namely – US, UK, France, Russia and China have signed the treaty. The remaining four nations namely – **India, Pakistan, Israel and North Korea** have not signed the treaty and thus not a party to the treaty.

Why India never signed the treaty?

o As per the stance of the Indian Government, the treaty in its current form is unfair as it, virtually, states that the **5 victorious nations of World War II have the right to possess nuclear weapons** while condemning the rest of the nations who don't have the weapons, to be subservient to the whims and fancies of the nations who do. In short, the treaty divides the world into nuclear **'haves' and 'have-nots'**.

o India's traditional position has always been that either the five nations denuclearize or everyone has the same rights as those who possess them. Also escalation of tensions by one of its nuclear-armed neighbours i.e. China was the primary reason why India conducted its own nuclear tests in the first place. It is this same escalation by India that prompted Pakistan to conduct its own nuclear test in order to act as a deterrent to what is perceived as "India's naked aggression.

India's Stand on NPT

o India is one of the only five countries that either did not sign the NPT or signed but withdrew, thus becoming part of a list that includes Pakistan, Israel, North Korea, and South Sudan.

o India always considered the **NPT as discriminatory and had refused to sign it.**

o India has opposed the international treaties aimed at non-proliferation since **they were selectively applicable to the non-nuclear powers** and **legitimized the monopoly of the five nuclear weapons powers.**

What are the drawbacks of the treaty?

o The main drawbacks of the treaty are that it never held accountable the 5 nations who possessed nuclear weapons at the time when the treaty was signed. At the same time, the enforcement of the treaty is also a serious cause for concern. Despite the threat of economic sanctions and other serious consequences, North Korea detonated its first bomb in 2006. Now even Iran is poised to go down the same route.

o The treaty even has serious loopholes which can be exploited by other nations in order to have their own nuclear weapons program.

o Regardless, It's clear that the world is a better place because of the Non-Proliferation Treaty. It was predicted that about 25 nations will possess nuclear weapons. But the mere presence of it has reduced it to 9.

o The NPT was not the only reason for this, but the mere presence of the safeguard can at least promise an era of peace, and if the current loopholes are fixed, it will fulfil such a promise.

Issues with Non-Proliferation Treaty

o NNWS criticizes the treaty to be discriminatory as it focuses on preventing **only horizontal proliferation** while **there is no limit for vertical proliferation**.

o NNWS groupings demand that the NWS should renounce their arsenals and further production in return for the commitment of NNWS not to produce them.

Vertical Proliferation vs Horizontal Proliferation

o Vertical proliferation can be defined as the **advancement or modernization of a nation-state's nuclear arsenal**, whereas **horizontal proliferation is the direct or indirect transfer of technologies from one nation-state to another**, which ultimately leads to the more advanced development and proliferation of nuclear weapons.

o As there is no explicit obligation on part of NWS to reduce their arsenal, NWS has continued to expand their respective arsenals without any constraints.

o NWWS also feels that the restrictions on Peaceful Nuclear Explosion (PNE) technology are one-sided.

Peaceful Nuclear Explosions

o Peaceful nuclear explosions (PNEs) are nuclear explosions **conducted for non-military purposes**.

o The US proposed to prohibit PNE rights and instead offered to provide the technology on a commercial basis.

o The Indian representatives consistently termed the offer as 'atomic apartheid' and 'commercial super-monopoly,' and insisted that PNE rights need to be integral to all peaceful uses of nuclear energy.

o India conducted its **first PNE in 1974** in opposition to this discriminatory principle.

Failure of Disarmament Process

o The NPT is largely seen as a Cold War-era instrument that has failed to fulfill the objective of creating a pathway towards a credible disarmament process.

o Treaty proposes no tangible disarmament roadmap, no reference to testing ban or to the freezing of production of either fissile materials or nuclear weapons, and omitted provisions for reductions and elimination.

o It instead allowed sustenance and expansion of arsenals by stipulating January 1, 1967, as the cut-off date to determine the NWS.

✛NATIONAL CYBER SECURITY POLICY

o National Cyber Security Policy is a policy framework by **Department of Electronics and Information Technology (DeitY).**

o It aims at protecting the public and private infrastructure from cyber-attacks.

o The policy also intends to safeguard "information, such as personal information (of web users), financial and banking information and sovereign data".

o Ministry of Communications and Information Technology (India) defines **Cyberspace as a complex environment consisting of interactions between people, software services supported by worldwide distribution of information and communication technology.**

National Cyber Security Policy Mission

o To protect information and information infrastructure in cyberspace.

o To build capabilities to prevent and respond to cyber threats.

o To reduce vulnerabilities and minimize damage from cyber incidents through a combination of institutional structures, people, processes, technology and cooperation.

National Cyber Security Policy Objectives

o **Encouraging the adoption of IT in all sectors** of the economy by creating adequate trust in IT systems by the creation of a secure cyber ecosystem.

o Creating an **assurance framework for the design of security policies** and for the promotion and enabling actions for compliance with global security standards and best practices through conformity assessment.

o **Bolstering the regulatory framework** for ensuring a secure cyberspace ecosystem.

o **Enhancing and developing national and sectoral level 24 x 7 mechanisms for obtaining strategic information** concerning threats to ICT infrastructure, creating scenarios for response, resolution and crisis management through effective predictive, preventive, protective, response and recovery actions.

o **Operating a 24×7 National Critical Information Infrastructure Protection Centre (NCIIPC)** to improve the protection and resilience of the country's critical infrastructure information.

o **Developing suitable indigenous security technologies** to address requirements in this field.

o **Improving the visibility of the ICT** (Information and Communication Technology) products/services' integrity by having testing and validation infrastructure.

o **Creating a workforce of 500,000 professionals** skilled in cybersecurity in the next 5 years.

o Providing businesses with fiscal benefits for adopting standard security practices and processes.

o **Safeguarding of the privacy of citizen's data and reducing economic losses** due to cybercrime or data theft.

o **Enabling effective prevention, investigation and prosecution** of cybercrime and enhancement of law enforcement capabilities through legislative intervention.

o **Developing a culture of cybersecurity and privacy**.

o Developing **effective public-private partnerships** and collaborative engagements by means of technical and operational cooperation.

o **Promoting global cooperation** by encouraging shared understanding and leveraging relationships for furthering the cause of security of cyberspace.

✚ASSAM-MEGHALAYA BOUNDARY DISPUTE

About

- Assam and Meghalaya share an 885-km-long border. As of now, there are 12 points of dispute along their borders.

- The Assam-Meghalaya border dispute are the areas of **Upper Tarabari, Gazang reserve forest, Hahim, Langpih, Borduar, Boklapara, Nongwah, Matamur, Khanapara-Pilangkata, Deshdemoreah Block I and Block II, Khanduli and Retacherra.**

- Meghalaya was carved out of Assam under the **Assam Reorganisation Act, 1971**, a law that it challenged, leading to disputes.

Major Point of Contention

o A major point of contention between Assam and Meghalaya is the district of **Langpih in West Garo Hills bordering the Kamrup district of Assam.**

o Langpih was part of the Kamrup district during the British colonial period but post-Independence, it became part of the Garo Hills and Meghalaya.

o Assam considers it to be part of the **Mikir Hills in Assam**.

o Meghalaya has questioned Blocks I and II of the Mikir Hills -**now Karbi Anglong region** - being part of Assam. Meghalaya says these were parts of **erstwhile United Khasi and Jaintia Hills districts**.

Efforts to Resolve Disputes

o Both Assam and Meghalaya have **constituted border dispute settlement committees**.

o It has been decided to set up **two regional committees to resolve the border disputes** in a phased manner and five aspects will be considered while resolving the border dispute.

o They are historical facts, ethnicity, administrative convenience, mood and sentiments of the people concerned and the contiguity of the land.

o Six sites are in consideration in the first phase. These are Tarabari, Gijang, Hahim, Baklapara, Khanapara-Pilingkata and Ratacherra.

o These disputed areas are part of Cachar, Kamrup Metro and Kamrup Rural on Assam's side and West Khasi Hills, Ri Bhoi district and East Jaintia Hills on Meghalaya's side.

Assam and Border Issues

o The states of the Northeast were largely carved out of Assam, which has border disputes with several states.

o Assam's border disputes with Arunachal Pradesh and Nagaland are pending in the Supreme Court.

o Assam's border disputes with Mizoram are currently in the phase of resolution through negotiations.

FLEET CARD

o **Indian Air Force in collaboration with Indian Oil Corporation Limited (IOCL)** has taken a leap forward in **fuel supply chain management** by introducing a **'Fleet Card - Fuel on Move'** for its varied fleet of vehicles.

o This innovative initiative taken by the Indian Air Force **provides a paradigm shift to the logistics management of fuel.**

o 'Fleet Card', the energy security for IAF vehicles on move, was launched by the Air Chief Marshal VR Chaudhari, Chief of Air Staff at Headquarters Western Air Command, Subroto Park on 28 Mar 22 in the presence of Air Marshal S Prabhakaran, Air Officer Commanding-in-Chief Western Air Command and Mr. SM Vaidya Chairman IOCL.

o **HQ Western Air Command was earmarked as lead agency** in the implementation and execution of this innovative concept of "Fuel on Move".

o **Availability of Fleet Card will permit the convoy to refuel at any IOCL fuel stations** thus increasing the pace of movement and reducing the lead time for readiness at operational locations across the nation.

o CAS complimented team WAC and IOCL for this initiative that has enhanced the operational preparedness and capability of the IAF.

MANPADS

Recent

*The United States and North Atlantic Treaty Organization (NATO) are shipping weapons into Ukraine, including highly sensitive items such as **shoulder-fired missiles called Man-Portable Air-Defence Systems (MANPADS)** that can take down aircraft.*

o Countries such as India, Pakistan, Germany, UK, Turkey and Israel have also used MANPADS in their defence efforts.

o Russia is by far the biggest exporter of MANPADs, having sold over 10,000 such systems between 2010 and 2018 to various countries including Iraq, Qatar, Kazakhstan, Venezuela, and Libya.

About

o MANPADS are **short-range, lightweight and portable surface-to-air missiles** that can be fired by individuals or small groups to destroy aircraft or helicopters.

- They **help shield troops from aerial attacks** and are most effective in targeting low-flying aircrafts.
- MANPATs or Man-Portable Anti-Tank Systems work in a similar manner but are used to destroy or incapacitate military tanks.
- MANPADS have a **maximum range of 8 kilometers** and can engage targets at altitudes of 4.5 km.
- The first MANPADS were introduced by the United States and Soviet Union in the 1960s.

01. FIM-92 STINGER
Entered Service: 1981
Missile length: 1.52 m
Missile Weight: 15.1 kg
Warhead Weight: 3 kg
Range: 8 km
Altitude of fire: 3.5 km

02. 9K333 VERBA
Entered Service: 2014
Missile length: 1.64 m
Missile Weight: 12 kg
Warhead Weight: 1.5 kg
Range: 6.5 km
Altitude of fire: 4.5 km

03. RBS 70 NG
Entered Service: 2005
Missile length: 1.3 m
Missile Weight: 17 kg
Warhead Weight: 1.6 kg
Range: 8 km
Altitude of fire: 5 km

04. MISTRAL
Entered Service: 1988
Missile length: 1.86m
Missile Weight: 18.7 kg
Warhead Weight: 3 kg
Range: 6 km
Altitude of fire: 3 km

TOP 8 MANPADS IN THE WORLD

05. STARSTREAK LML-NG
Entered Service: 1997
Missile length: 1.39 m
Missile Weight: 14 kg
Warhead Weight: 2.7 kg
Range: 7 km
Altitude of fire: 5 km

06. Type 91
Entered Service: 1994 Missile length: 1.43 m
Missile Weight: 11.5 kg
Warhead Weight: 1.27 kg
Range: ~6 km
Altitude of fire: <4 km

07. 9K338 IGLA-S
Entered Service: 2004
Missile length: 1.57 m
Missile Weight: 11.7 kg
Warhead Weight: 2.5kg
Range: 6 km
Altitude of fire: 3.5 km

08. GROM
Entered Service: 1995
Missile length: 1.57 m
Missile Weight: 10.5 kg
Warhead Weight: 1.27 kg
Range: 5.5 km
Altitude of fire: 3.5 km

Features

Shoulder-Fired, Light Weight:
- They can be shoulder-fired, launched from atop a ground-vehicle, fired from a tripod or stand, and from a helicopter or boat.
- They are fairly lightweight as compared to other elaborate weapon systems, making them easy to operate by individual soldiers.
- They weigh anywhere between 10 to 20 kilograms and are not longer than 1.8 meters.

Fire and Forget Guidance Systems:
- Most of them have passive or 'fire and forget' guidance systems, meaning that the operator is not required to guide the missile to its target, enabling them to run and relocate immediately after firing.

Infrared (IR) Seekers:
o The missiles are fitted with infrared (IR) seekers that identify and target the airborne vehicle through heat radiation being emitted by the latter.

Common Variants:
o Stinger Missiles (US), Igla MANPADS (Russia), Starstreak (Britain), RBS-70 MANPADS Series (Sweden), Next Generation Light Antitank Weapon or NLAW missiles and Javelin missiles (US and NATO).

Concerns:

Civilian Attacks:
o According to a 2019 study, more than 60 civilian aircraft have been hit by MANPADS since the 1970s, claiming the lives of more than 1,000 civilians.

Illicit Use by Non-State Actors:
o Over time, non-state actors such as rebel and terrorist groups are known to have illicitly acquired MANPADS, using them during civil wars and other high-intensity conflicts.

Illegal Weapon Trade:
o Observers fear that sending lightweight ground-based MANPADS to Ukraine may contribute to intensifying the network of illegal weapon trade.

EXERCISE DHARMA GUARDIAN

Recent

A Joint Military Exercise, "Exercise Dharma Guardian-2022", between India and Japan was conducted at foreign training node, Belagavi (Belgaum, Karnataka).

What is Exercise Dharma Guardian?
o Exercise Dharma Guardian-2022 is an annual training event which is being conducted in India since 2018.
o The scope of this exercise **covers platoon level joint training on operations in jungle and semi urban/urban terrain.**
o The joint exercise schedule includes house interventions drills, raid on terrorist hideouts in semi urban terrain, combat first aid, unarmed combat & close quarter combat firing where both sides will jointly train, plan and execute a series of well-developed tactical drills for neutralisation of likely threats.
o Special emphasis is being laid on enhancing tactical skills to fight global terrorism and on enhancing inter-operability between the forces and to promote Army to Army relations.

Other Military Exercises between India and Japan

o Malabar: India and Japan with the United States and Australia participate in the naval wargaming exercise named Malabar.
o JIMEX (naval)
o SHINYUU Maitri (Air Force)

HYPERSONIC MISSILES

Recent

The Russian Ministry of Defence announced that it had used a hypersonic missile for the first time in the ongoing conflict with Ukraine.

*The **Kinzhal aviation missile system** with **hypersonic aero-ballistic missiles** was used in the village of Deliatyn in the **Ivano-Frankivsk region**.*

o A hypersonic missile is a weapon system **which flies at least at the speed of Mach 5 i.e. five times the speed of sound and is manoeuvrable**.
o The manoeuvrability of the hypersonic missile is what sets it apart from a ballistic missile as the latter follows a set course or a ballistic trajectory. Thus, unlike ballistic missiles, hypersonic missiles do not follow a ballistic trajectory and can be manoeuvred to the intended target.
o The two types of hypersonic weapons systems are **Hypersonic Glide Vehicles (HGV)** and **Hypersonic Cruise Missiles**.
o The HGV are launched **from a rocket** before gliding to the intended target while the hypersonic cruise missile is powered by air breathing **high speed engines or 'scramjets'** after acquiring their target.

Advantages of hypersonic missiles

o Hypersonic weapons can enable responsive, long range strike options against distant, defended or time critical threats (such as road mobile missiles) when other forces are unavailable, denied access or not preferred.
o Conventional hypersonic weapons use only kinetic energy i.e. energy derived from motion, to destroy unhardened targets or even underground facilities.

Which countries possess hypersonic weapons or are in process of developing them?

o Apart from Russia, which announced its hypersonic missile 'Kinzhal' or Dagger in 2018 and has now used it for the first time in battle conditions in Ukraine, China too is reportedly in possession of this weapon system and has twice used it to circumnavigate the globe before landing near a target in August 2021.
o The Russian Kinzhal missile is said to be a modification of its **Iskander missile** and was test fired from a MiG-31 aircraft in July 2018 striking at a target 500 miles away.
o As per Russian media reports the **Kinzhal has a top speed of Mach 10** with a range up to 1200 miles when launched from a MiG-31.
o Russia is also said to be **using the missile on Su-34 long range fighter** and is working towards mounting it on Tu-22M3 strategic bomber.
o China is said to have tested a HGV in August 2021 launched by a **Long March rocket**.

o In the **US,** the hypersonic weapons are being developed under its **Navy's conventional Prompt Strike Programme** as well as through Army, Air Force **and Defence Advanced Research Projects Agency (DARPA).**

o While the US, Russia and China are in advanced stages of hypersonic missile programmes, India, France, Germany, Japan and Australia too are developing hypersonic weapons.

♦ KUKI INSURGENCY

o The Kukis are a multi-tribal ethnic group that live in **India's north-eastern regions of Manipur, Mizoram, and Assam, as well as parts of Bangladesh and Myanmar**.

o The different Kuki tribes of Manipur, who live primarily in the hills, currently account for 30% of the state's total population of 28.5 lakh people.

o The rest of Manipur's population is composed primarily of two other ethnic groups: non-tribal **Vaishnavite Hindus who inhabit the state's valley region**, and **Naga tribes who live in the state's mountainous areas.** The latter has historically been at odds with the Kukis.

o Kuki militancy has its roots in ethnic identity struggles. They want **Kukiland,** which comprises Kuki inhabited territories in **Myanmar, Manipur, Assam, and Mizoram**, to have self-determination primarily for groups belonging to their ethnic fabric.

o The second cause of insurgency in Manipur is **intercommunal violence between the Kukis and the Nagas.**

History of Kuki Insurgency

o Manipur, a former princely state, became a full-fledged Indian state in the year 1972. As a princely state, it included parts of Burma before joining India.

o Various insurgent groups arose as a result of resentment over the "forceful" integration into India and the delay in giving statehood.

o The problem was exacerbated in the year **1980 when Manipur was designated as a "disturbed area" under the Armed Forces Special Powers Act (AFSPA),** which grants the military broad powers and is said to have led to excesses.

o In the 1980s and after the Kuki-Naga skirmishes of the 1990s, the Kuki insurgency in Manipur intensified in actual terms. The **Kuki National Organisation (KNO) and its military wing, the Kuki National Army (KNA),** were founded at this time. Other Kuki units, such as the Kuki Commando Force and the Kuki Independent Army, were also founded.

o Since signing an agreement with the Indian Army in the year 2005, the Kuki insurgent forces have been under **Suspension of Operation (SoO).**

o In 2008, the organisations reached a tripartite agreement with the State government of Manipur, and the UPA led Central government, led by former Prime Minister Manmohan Singh, to temporarily halt their operations and allow political discussion a chance.

Reasons behind Kuki Insurgency

o Kuki militancy has its genesis in ethnic identity struggles. The first was the **quest for self-determination purely for ethnic groups**.

o While some insurgent Kuki groups wanted Kukiland that included portions that were not part of India, others demanded Kukiland that was entirely within India.

o Presently, there is a demand for the creation of an **autonomous district "Kukiland Territorial Council" within the Indian constitution**, modelled after the Bodoland Territorial Council, which was established under the sixth schedule of the Constitution after militant groups in the state of Assam entered into an agreement with their state government.

o The Kuki-Naga tussle began over securing identity as well as land, as some Kuki inhabited regions coincided with areas inhabited by the Naga tribes.

o The two communities frequently engaged in violent showdowns, with villages being burnt, civilians being slaughtered, and so on, in order to gain control of commerce and cultural activities in those regions.

o Despite the fact that confrontations between the two ethnic groups have decreased in recent decades, tensions between them still remain.

o The Naga movement in the neighbouring state of Nagaland spread to Manipur's hill regions, with the NSCN-IM commanding the majority while pushing for "Nagalim" (Greater Nagaland), which is seen as a "threat" to Manipur's "territorial integrity" in the valley.

o Despite the fact that the hills cover nine-tenths of Manipur's land area, they are sparsely populated, with the majority of the state's people located in the valley.

o The **Meitei community dominates the Imphal valley, while Nagas and Kukis live in the neighbouring hill districts.**

o The Assam Rifles as well as the army undertook operation "All Clear" in the hill areas, neutralising most militant hideouts and forcing many of them to flee to the valley.
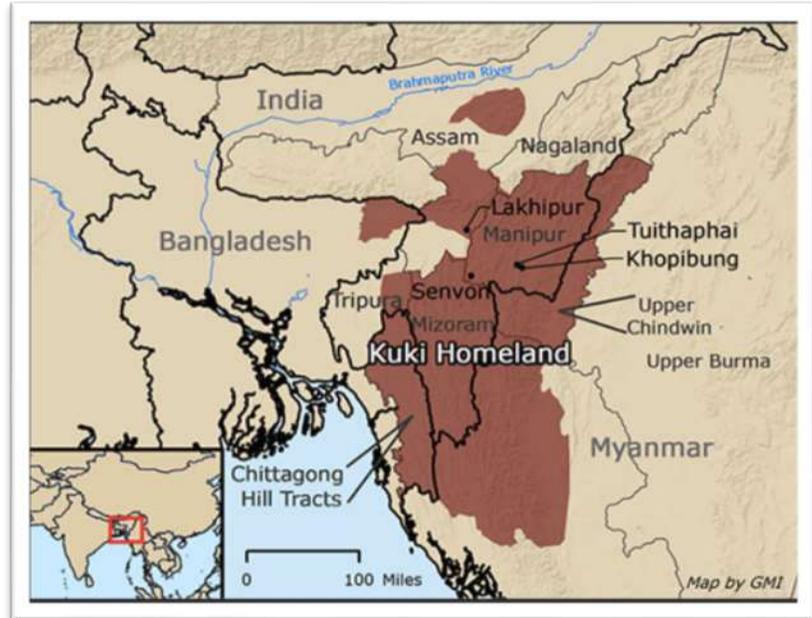
Challenges in Restoring Peace in Manipur

o Because Manipur is a border state with a permeable international border as well as a harsh forest environment, militant organisations that rely on external nations for training and other logistical support continue to infiltrate the country.

o The state's troubles are exacerbated by the link between politicians, militants, and criminals. Extortion, abduction, and contractual assassinations are all common activities for some groups.

o Miscreants reap the benefits of the disturbance and use it to extort money while posing as militants. Furthermore, most security issues are politicised by political parties in order to earn vote bank mileage by escalating conflicts.

o Given the ongoing peace discussions with the insurgent organisations, there has been a propensity for the factions to continue the armed revolt by creating a new proxy group or changing its name.

o The central government's strategy of reaching a negotiated solution with insurgent groups has backfired. Because many of the outfits' goals conflict with one another, any conventional arrangement with one organisation causes agitation among the others.

HISTORY AND CULTURE

(Ancient; Medieval and Modern)

✛ DELHI SULTANATE ADMINISTRATION

o The effective administrative system under the Delhi Sultanate made a great impact on the Indian provincial kingdoms and later on the Mughal administrative system. At its peak, the Delhi Sultanate controlled regions as far south as Madurai.

o The Turkish ruler **Mahmud of Ghazni was the first to adopt the title of Sultan**. The Delhi Sultanate was an Islamic State with its religion as Islam.

o The **sultans were considered to be the representatives of the Caliph**. The name of the Caliph was included in the **khutba (prayer) and also inscribed on their coins**. This practice was even followed by Balban, who called himself "the shadow of God".

o Iltutmish, Muhammad Bin Tughlaq and Feroz Tughlaq obtained a **'mansur' (letter of investiture)** from the Caliph.

o The ultimate authority for the legal, military & political activities was with the Sultan. All the Sultan's sons had an equal claim to the throne since there was no unambiguous succession law at the time. Iltutmish had even nominated his daughter Raziya over his sons. However, such nominations had to be accepted by the nobles. At times, the Ulemas also played a pivotal role in getting a favourable public opinion. Nevertheless, military might was the chief factor when it came to succession.
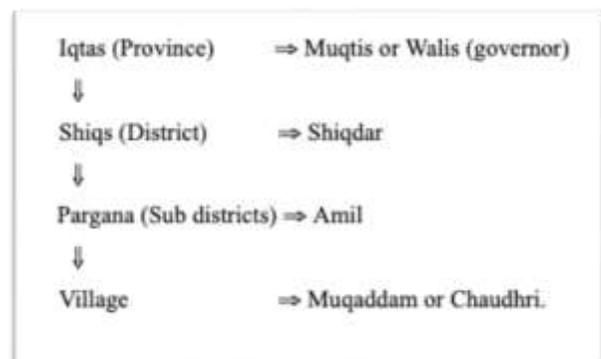
Central Administration

o There were many departments and officials who helped the Sultan in administration.

o The **Naib** was the **most influential pos**t and virtually enjoyed all the powers of the Sultan. He had control over all the other departments.

o The post of **Wazir was next to the Naib** and he headed the finance department known as the **Diwan-i-Wizarat**. An Auditor-General for examining expenditure and an Accountant General for checking income worked under the Wazir. The period of wazir-ship of Feroz Shah Tughlaq Khan-i-Jahan is generally considered as the high watermark period of the Wazir's influences.

o **Diwan-i- Ariz** was the **military department** that was commanded by the **Ariz-i-Mumalik**. He would recruit the soldiers and administer the military department. However, Sultan himself acted as the Commander-in-chief of the army. During the reign of Alauddin Khalji, the number of soldiers in the department was about three lakh. The efficient army helped in containing the Mongol invasions along with the Decan expansion. The Turks also had a large number of properly trained elephants for war purposes. The **cavalry was given prime importance** and was considered more prestigious.

o The **department of religious affairs, Diwan-i-Risalat** dealt with pious foundations and granted stipends to deserving scholars and men of piety. This department granted funds for the construction of madrasas, tombs and mosques. It was headed by **Chief Sadr** who also **functioned as Chief Qazi,** the head of the judicial system. Other judges and Qazis were appointed in different parts of the Sultanate.

o Sharia or Muslim personal law was followed in civil matters.

o The **Hindus were governed by their own personal law and their cases were dispensed by the village panchayat**. The criminal law was dictated by the rules and regulations established by the Sultans.

o **Diwan-i-Insha was the department of correspondence**. All the correspondence between the ruler and the sovereigns of other states as well as with his junior officials was managed by this department.

Diwan-i-Risalat	Department of appeals	In charge of foreign affairs and dealing with diplomatic correspondences
Diwan-i-arz	Department of Military	Responsible for maintaining the royal army and recruiting troops. This department was introduced by Balban.
Diwan-i-Ishtiaq	Department of pensions	In charge of pensions
Diwan-i-Mustakhraj	Department of arrears	This was the department of revenue
Diwan-i-kohi	Department of agriculture	In charge of managing the agricultural activities in the kingdom. This department was created by Muhammad Bin Tughlaq.
Diwan-i-insha	Department of correspondence	In charge of the royal correspondence and the regulations set by the Sultans were the basis of law
Diwan-i-Bandagan	Department of slaves	In charge of slaves
Diwan-i-Qaza	Department of justice	Managing justice in the empire
Diwan-i-Khairat	Department of charity	In charge of charity

Provincial Government

o **Iqtas,** the provinces under the Delhi Sultanate were initially under the dominion of the nobles.

o **Muqtis or Walis** was the name given to the governors of the provinces and were responsible for maintaining law and order and collecting the land revenue.

o The provinces were further **divided into Shiqs**, which was under the control of the **Shiqdar.**

o The **Shiqs were further divided into Pargana**,

Iqtas (Province) ⇒ Muqtis or Walis (governor)
⇓
Shiqs (District) ⇒ Shiqdar
⇓
Pargana (Sub districts) ⇒ Amil
⇓
Village ⇒ Muqaddam or Chaudhri.

comprising a number of villages and was headed by the **Amil.**

o The village remained the basic unit of administration and its headman was called **Chaudhri or Muqaddam.**

o **Patwari** was the village accountant.

⬥DELHI SULTANATE ECONOMY

o Under the Delhi Sultanate, certain land reforms were introduced in the revenue department. The lands were categorised into three classes-

- **Iqta land** – the lands which were allotted to the officials as iqtas instead of payment for their services.
- **Khalisa land** – it was directly under the control of the Sultan and the revenue generated was utilised for maintaining the royal court and royal household.
- **Inam land** – it was allotted to religious institutions or religious leaders.

o The farmers paid **1/3rd of their produce as land revenue** and sometimes even half of the produce. They also had to pay other taxes and lived miserable lives. However, Sultans like Muhammad Bin Tughlaq and Firoz Tughlaq provided better irrigation facilities and also **takkavi loans** which helped in the increased agricultural production. They also promoted the cultivation of crops like wheat rather than barley.

o A **separate agriculture department, Diwan-i-Kohi** was set up by **Muhammad Bin Tughlaq**. Firoz Tughlaq promoted the growth of the horticulture sector.

o A number of **cities and towns** had grown during this period which led to rapid urbanisation. The important cities were – Multan, Lahore (north-west), Anhilwara, Cambay, Broach (west), Lakhnauti and Kara (east), Jaunpur, Daulatabad and Delhi. Delhi was the largest city in the east.

o A large number of items were exported to the Persian Gulf countries and West Asia and also to Southeast Asian countries. Overseas trade was dominated by **Khurasanis (Afghan Muslims)** and **Multanis (mostly Hindus).** Inland trade was under the control of Gujarati, Marwari and Muslim Bohra merchants. These merchants were rich and lived luxurious lives.

o Roads were built and maintained for facilitating smooth transport and communication. The royal roads were especially kept in good shape. In addition to the royal road from Peshawar to Sonargaon, Muhammad Bin Tughlaq built a road to Daulatabad. Sarais or rest houses were constructed on the highways for the benefit of the travellers.

o During the Delhi Sultanate, the **silk and the cotton textile industry thrived**. The introduction of **sericulture** on a large scale made India less reliant on other countries for the import of raw silk. **Paper** was widely used from the 14th and 15th centuries which led to the growth of the paper industry. Other crafts like carpet weaving, leather making and metal crafts also flourished due to the rise in their demand.

o The goods needed by the Sultan and his household were supplied by the **royal karkhanas**. Expensive articles made of gold and silver were produced by the royal karkhanas. The nobles were paid well and they copied the lifestyle of the Sultans and lived a pleasurable life.

o The **system of coinage** had also boomed during the Delhi Sultanate. Several types of **tankas were issued by Iltutmish**.

o During the **Khalji rule, one tanka was divided into 48 jitals and 50 jitals during the Tughlaq rule**.

o After the south Indian conquests by Alauddin Khalji, **gold coins or dinars became popular**. Copper coins were fewer in number and dateless. Muhammad Bin Tughlaq experimented with token currency and also issued different types of gold & silver coins. The coins were minted at different places. At least twenty-five different types of gold coins were issued by him.

o The Turks popularised a number of crafts and techniques like the use of iron stirrup, use of armour (for both the rider and the horse), improvement of **Rahat** (Persian wheel which helped in lifting the water from deeper levels), the spinning wheel and an improved loom for carpet weaving, use of superior mortar, which helped to erect magnificent buildings based on the arch and dome, etc.

✚DELHI SULTANATE SOCIETY

o There were hardly any changes in the structure of the Hindu society during the Delhi Sultanate. The Brahmins continued to enjoy the highest place in the social strata.

o The **severest restrictions were placed on mingling** with the chandalas and other outcasts.

o During this period, the practice of keeping women in seclusion and asking them to veil their faces in the presence of outsiders **(purdah system)** became prevalent among the upper-class Hindus (particularly in North India).

o The Arabs and Turks brought the **purdah system into India and it became a symbol of the higher classes** in society.

o The **practice of sati was widely prevalent** in different regions of the country.

o **Ibn Batuta mentions that permission from the Sultan** had to be taken for the performance of sati.

o During the Sultanate period, the **Muslim society remained divided into ethnic and racial groups**. The Afghans, Iranians, Turks and Indian Muslims developed as exclusive groups and rarely married each other. Converts from the lower sections of Hindus were also discriminated against.

o For the Hindu subjects, from the time of the Arab invasion of Sindh, they had been given the status of **zimmis or protected people** i.e, those who accepted the Muslim rule and agreed to pay a tax called jaziya.

o **At first, jaziya was collected along with land revenue**. Later, **Firoz Tughlaq made jaziya a separate tax** and levied it on Brahmins also, who were earlier exempted from the jaziya.

o Slavery had existed in India for a long time, however, it thrived during this period. There existed **slave markets for men and women**. Slaves were generally bought for domestic service, for company or for their special skills. Firoz Shah Tughlaq had about 1,80,000 slaves.

✚DELHI SULTANATE- ART, ARCHITECTURE, LITERATURE
Delhi Sultanate – Art and Architecture

o Art and architecture was a **combination of Islamic and Indian styles** that took a new direction during the Delhi Sultanate. Domes, arches, lofty towers, minarets, Islamic script were introduced by the Turks.

o The **dome is the prominent feature of the mosques** in contrast to the shikhara of Hindu temples.
o Delhi Sultans had a great taste for architecture. The architecture was a blend of Indian and Islamic styles.
o **Qutub Minar** is a towering 73m high tower constructed by Qutub-ud-din Aibak and completed by Iltutmish in memory of the Sufi saint Qutub-ud-din Bakhtiyar Kaki. Later
o Alauddin Khalji built an entrance to the Qutub Minar called **Alai Darwaza**.
o The **palace complex of Tughlaqabad** was built during the reign of Ghiyasuddin Tughlaq.
o Muhammad Bin Tughlaq built the **tomb of Ghiyasuddin Tughlaq** on a high platform. He also built **Jahanpanah,** one of the cities of Delhi.
o **Firoz Shah Tughlaq built Hauz Khas**, a pleasure resort and also built the **Feroz Shah Kotla fort.** The Tughlaq rulers started building the tombs on an elevated platform.
o The **Lodhi Gardens** in Delhi is an example of the architecture of the Lodhis.

Delhi Sultanate Music

o The **sarangi and the rabab**, new musical instruments were introduced during this period.
o Also, new ragas like **ghora and sanam were introduced by Amir Khusrau**. He is also credited with **fusing the Iranian and Indian musical systems to create Qawwali**.
o He also **invented the Sitar**.
o **Ragadarpan**, the Indian classical work, was translated into Persian during the rule of Firoz Shah Tughlaq.
o **Pir Bhodan was a Sufi saint** who was regarded as the greatest musician of his age.
o Raja Man Singh of Gwalior was a great patron of music and encouraged the composition of the great work on music called **Man Kautuhal.**

Delhi Sultanate Literature

o The Delhi Sultans gave huge importance to literature and showed more interest in the progress of Persian literature.
o Apart from poetry and theology, history writing was also promoted.
o The most renowned historians of this time were **Minhaj-us-Siraj, Zia-ud-din Barani, Hasan Nizami and Shams Siraj.**
o **Tabaqat-i-Nasari was authored by Minhaj-us-Siraj** which gives a general account of the history of Muslim dynasties up to c. 1260 CE.
o The history of the Tughlaq dynasty, **Tarikh-i-Firoz was written by Barani**.
o Prince Muhammad, the eldest son of Sultan Balban was a great patron of scholars and provided protection to two great scholars of his time i.e, Amir Khusrau and Amir Hasan.
o Amir Khusrau has been regarded as the greatest Persian poet of his age.
o He is said to have written more than 4 lac couplets.
o He created a new **style of Persian poetry called Sabaq-i-Hind (Indian style).**
o His important works include **Khazain-ul-Futuh, Tughlaqnama and Tarikh-i-Alai**.
o He was a great singer and was given the title 'Parrot of India'.

o Translation of certain Sanskrit books was done into the Persian language during this period. **Zia Nakshabi was the first** to translate Sanskrit stories into the Persian language.
o The book **Tutu Nama** or the Book of the Parrot was first translated into Turkish and then to many European languages.
o The famous book **Rajatarangani written by Kalhana** belonged to the era of Kashmiri ruler Zain-ul-Abideen.
o In the Arabic language, **Al-Beruni's Kitab-ul-Hind** is the most important work.
o Al-Beruni or Alberuni was an Arabic and Persian scholar patronized by Mahmud of Ghazni.
o He learnt Sanskrit and translated two Sanskrit works into Arabic.
o He was impressed by the Upanishads and Bhagavad Gita.
o In his work Kitab-ul-Hind (also known as Tarikh-ul-Hind), he had mentioned the socio-economic conditions of India.
o A large number of scholars flourished at the courts of provincial rulers as well. **Chand Bardai**, a Hindi poet, was the author of Prithviraj Rasau.
o Nusrat Shah patronised the translation of Mahabharata into Bengali.
o **Krittivasa prepared** a Bengali translation of the Ramayana from Sanskrit.

MUGHALS

BABUR (1526-1530)

o Babur is the founder of the Mughal Empire in India.
o He was a descendant of **Timur (on his father's side)** and **Genghis Khan (on his Mother's side).**
o His original name was **Zahiruddin Muhammad**.
o In 1494 at the age of 11, Babur became the ruler of **Farghana** succeeding Umar Shaikh Mirza, his father.
o Daulat Khan, the most powerful noble of Punjab, who was discontented with Ibrahim Lodhi, invited Babur to invade India.
o He undertook four expeditions to India in order to conquer it between the years 1519 and 1523.

Babur's Military Conquests

o In **1504**, Babur occupied Kabul.
o In **1524,** Babur occupied Lahore but had to retreat to Kabul after Daulat Khan turned against him.
o In **November 1525,** Babur attacked and occupied Punjab again.
o On **21st April 1526**, Babur defeated Ibrahim Lodi in the First Battle of Panipat and quickly occupied Delhi and Despite vast and superior troops, Ibrahim Lodi lost in the battle due to Babur's superior strategy and use of artillery.
o The First Battle of Panipat marked the foundation of Mughal dominion in India.
o Babur conquered Delhi and sent his son Humayun to seize Agra.
o Babur announced himself as **"Emperor of Hindustan".**

Rana Sangha & Babur

o Rana Sangha of Mewar was a great Rajput warrior.

o He gave the toughest resistance to Babur's expansion plans.

o On **March 16, 1527**, Rana Sangha, along with rulers of Marwar, Amber, Gwalior, Ajmer and Chanderi and Sultan Mahmood Lodi (whom Rana Sangha had acknowledged as ruler of Delhi) met Babur in a decisive contest at Kanhwa, a village near Agra. The aim was to prevent the imposition of another foreign repression.

o Babur succeeded over them by using similar tactics as in the Battle of Panipat. Then, he took on the title of **"Ghazi".**

o In the year **1528, Chanderi was captured by Babur from Rajput king Medini Rai**.

o On **May 6, 1529,** Babur met the allied Afghans of Bihar and Bengal on the **banks of Gogra**, near Patna and defeated them. With this battle, Babur occupied a considerable portion of northern India.

o On December 26, 1530, Babur died at Agra aged 40. His body was first laid at **Arambagh in Agra** but was later taken to Kabul, where it was buried.

Estimate of Babur

o He was an eminent scholar in Arabic and Persian.

o His mother tongue was **Chaghatai Turkic**.

o He was said to be a statesman.

o He wrote his memoirs, **Tuzuk-i-Baburi in Turki language**.

HUMAYUN (1530-1540, 1555-1556)

o Humayun was the eldest son of Babur.

o Humayun **means "fortune"** but he remained the most unfortunate ruler of the Mughal Empire.

o Six months after his succession, Humayun besieged the fortress of **Kalinjar in Bundelkhand**, gained a decisive victory over Afghans at Douhrua and **drove out Sultan Mahmood Lodhi from Jaunpur**, and **even defeated Bahadur Shah of Gujarat**. His victories, however, were short-lived due to the weakness of his character.

o Humayun had **three brothers, Kamran, Askari and Hindal**

o Humayun divided the empire among his brothers but this proved to be a great blunder on his part.

o **Kamran was given Kabul and Kandahar**.

o **Sambhal and Alwar were given to Askari and Hindal respectively**.

o Humayun captured Gujarat from Bahadur Shah and appointed **Askari as its governor**

o But soon Bahadur Shah recovered Gujarat from Askari who fled from there.

o In the east, Sher Khan became powerful. Humayun marched against him and in the Battle of Chausa, held in 1539, Sher Khan destroyed the Mughal army and Humayun escaped from there.

o Humayun reached Agra to negotiate with his brothers.

o In **1540, in the Battle of Bilgram or Ganges also known as Battle of Kanauj**, Humayun was forced to fight with Sher Khan alone and after losing his kingdom, Humayun became an exile for the next fifteen years.

o During his wanderings in deserts of Sindh, Humayun married Hamida Banu Begum, daughter of Sheikh Ali Amber Jaini, who had been a preceptor of Humayun's brother Hindal.
o On **November 23, 1542,** Humayun's wife gave birth to **Akbar.**
o Amarkot's Hindu chief **Rana Prasad** promised Humayun to help him to conquer Thatta
o However, Humayun could not conquer Bhakker or secure it. Thus, he left India and lived under the generosity of **Shah Tahmashp of Persia**.
o Shah of Persia agreed to help Humayun and lend him a force of 14,000 men on a condition to confirm to Shia creed, to have the Shah's name proclaimed in his Khutba and to give away Kandhar to him on his success.
o In 1545, with Persian help, Humayun captured Kandhar and Kabul but refused to cede Kandhar to Persia.
o Humayun sought help from the Safavid ruler.
o Later, he defeated his brothers Kamran and Askari.
o In 1555, Humayun defeated the Afghans and recovered the Mughal throne.
o After six months, he died in 1556 due to his fall from the staircase of his library.
o Humayun was kind and generous, though he was not a good General and warrior.
o He also **loved painting and wrote poetry in the Persian language**.

AKBAR (1556-1605 AD)

o Akbar was one of the greatest monarchs of the Mughal dynasty. He was the son of Humayun and Hamida Banu Begum, born at Amarkot in c. 1542 CE.

o When Humayun fled to Iran, young Akbar was captured by his uncle **Kamran,** but he treated him well. Akbar was reunited with his parents after the capture of Qandahar.

o When Humayun died, **Akbar was at Kalanaur** in Punjab, commanding operations against the Afghan rebels there.

o He was **crowned at Kalanaur in c. 1556 CE** at the young age of 13 years and 4 months.

o During the first few years of Akbar's reign (c. 1556 – 1560 CE), **Bairam Khan** acted as his regent. Bairam Khan was Humayun's confidante and gained the title of **Khan-i-Khanan**.

o Bairam Khan **represented Akbar in the Second Battle of Panipat** (c. 1556 CE) with **Hemu Vikramaditya (wazir of Adil Shah of Bengal)** who led the Afghan forces.
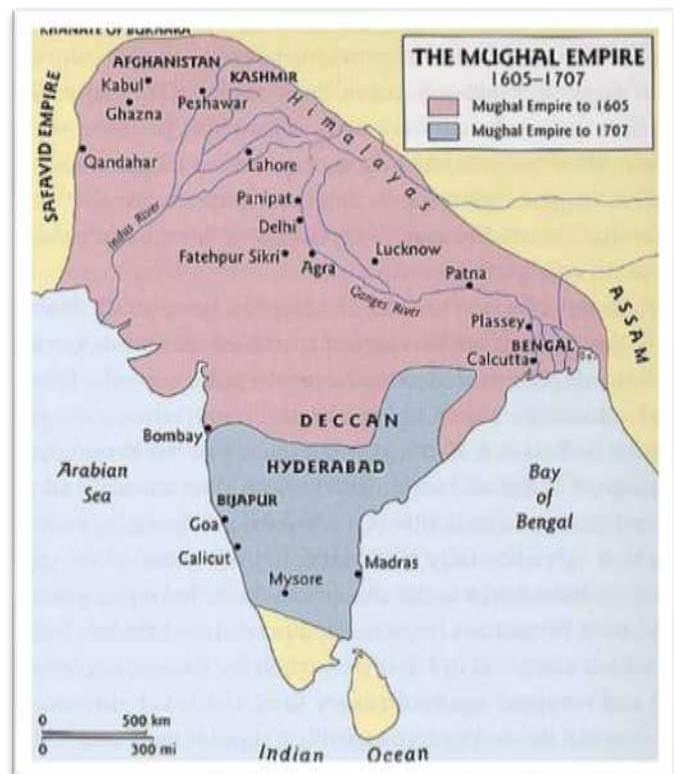
Hemu was almost on the point of victory but an arrow pierced his eye and he became unconscious. His army fled and fortune favoured the Mughals.

o During the regency period of Bairam Khan, Mughal territories were extended from Kabul up to Jaunpur in the east, and Ajmer in the west. Gwalior was also captured.

o Bairam Khan emerged as the most powerful noble and started appointing his own supporters on important positions neglecting the old nobles. This caused resentment among other nobles who managed to influence Akbar as well. The growing arrogance of Bairam Khan also aggravated the problem.

o Akbar removed him and gave him the option of serving at the court or anywhere outside it or retiring to Mecca. Bairam Khan chose Mecca but on his way was killed by an Afghan at Patan near Ahmedabad. Bairam's wife and his young child were brought to Akbar at Agra.

o Akbar married his widow and brought up Bairam's child as his own who later became famous as **Abdur Rahim Khan-i-Khanan,** a noted Hindi poet and an influential noble.

o Akbar had to face rebellions from many groups and individuals in the nobility. This included his foster mother, **Maham Anaga** and her relations, particularly her son, **Adham Khan**.

o In c. 1561 CE, Adham Khan defeated Baz Bahadur and emerged victorious at Malwa. Adham Khan followed his victory at Malwa with an almost total massacre of the defending army, women and even children and sent only parts of the booty to Akbar. Removed from command, he laid claim to the post of wazir and when this was not granted, he stabbed the acting wazir in his office. Akbar was enraged and threw him down from the Agra Fort.

o **Uzbeks** held important positions in eastern Uttar Pradesh, Bihar and Malwa. Between c. 1561-1567 CE, they broke out in rebellion several times. Meanwhile, a rebellion by the **Mirzas, who were Timurids**, also turned against the emperor. Encouraged by these rebellions, Akbar's half brother, **Mirza Hakim,** who had seized control of Kabul advanced into Punjab and besieged Lahore.

o The Uzbek rebel nobles declared Mirza Hakim as the emperor of Hindustan. However, by sheer grit, determination and a certain amount of luck, Akbar overcame these rebellions. Mirza Hakim was forced to flee to Kabul and the rebellion of the Mirzas was crushed, while the Uzbeks were completely routed by c. 1567 CE.

Early expansion of the Empire (c. 1560- 1576 CE)

Conquest of Gwalior, Malwa and Gondwana

o The first expedition was sent to **capture Gwalior (c. 1559-1560 CE)** before moving towards Malwa.

o Adham Khan, son of Akbar's foster mother, Maham Anaga defeated the ruler of Malwa, Baz Bahadur (c. 1561 CE). Due to the senseless cruelties of Adham Khan and his successor, there was a reaction against the Mughals which enabled Baz Bahadur to recover Malwa. After successfully dealing with a number of rebellions, Akbar sent another expedition to Malwa. Baz Bahadur had to flee and he took shelter under the Rana of Mewar. Later he moved from one place to another and finally surrendered at Akbar's court and was appointed as a Mughal mansabdar. Thus, Malwa came under the Mughal rule.

o The kingdom of **Garh-Katanga (Gondwana)** included the Narmada Valley and the northern parts of present-day Madhya Pradesh. The kingdom consisted of a number of Gond and Rajput

principalities. It was ruled by **Durgavati, the Chandella princess from** Mahoba and the widow of Dalpat Shah, son of Sangram Shah. She ruled the kingdom with great vigour and courage. Meanwhile, the cupidity of Asaf Khan, the Mughal governor of Allahabad was aroused by the stories of the splendid wealth and beauty of Rani Durgavati. In c.1564 CE, he attacked Gondwana; Rani Durgavati fought bravely but lost the battle. She stabbed herself to death and Gondwana was captured by Asaf Khan.

o Akbar later **restored the kingdom of Garh-Katanga to Chandra Shah**, the younger son of Sangram Shah, after taking ten forts to round off the kingdom of Malwa.

Conquest of Rajasthan

o Akbar was well aware of the importance of the Rajput kingdoms and wanted them as allies in order to establish a large empire.

o The Rajput policy of Akbar was notable. He married the Rajput princess **Jodha Bai, daughter of Raja Bharamal of Amber**.

o He inducted Rajputs into Mughal services and many of them rose to the position of military generals. **Bhagwant Das**, son of Raja Bharamal was appointed joint governor of Lahore, his son **Man Singh was appointed the governor of Bihar and Bengal.**

o The **Rajput kingdoms Merta and Jodhpur** were captured without much resistance.

o A major step in his campaign against the Rajput states was the **siege of Chittor** which was considered a key to central Rajasthan. In c. 1568 CE, Chittor fell after a gallant siege of 6 months. At the advice of his nobles, **Rana Udai Singh** retired to the hills, leaving the famous warriors – **Jaimal and Patta** in charge of the fort..

o The Ranas of Mewar continued to defy despite several defeats. In the famous Battle of Haldighati, Rana Pratap Singh, ruler of Mewar was defeated by the Mughal army led by Man Singh in 1576.

o After the fall of Chittor, **Ranthambhore (the most powerful fortress in Rajasthan) and Kalinjar were conquered.** As a result of these successful conquests, most of the Rajput Rajas, including those of Bikaner and Jaisalmer submitted to Akbar. By c. 1570 CE, Akbar had conquered almost the whole of Rajasthan.

o In spite of the subjugation of the whole of Rajasthan, there was no hostility between the Rajputs and the Mughals. **Akbar's Rajput policy was combined with broad religious toleration**.

o He **abolished the pilgrim tax** and the practice of forcible conversion of prisoners of war.

o In c. **1564 CE, he abolished the jizya** which was often considered a symbol of Muslim domination and superiority. The Rajput policy of Akbar proved beneficial to the Mughal empire as well as to the Rajputs. The alliance secured to the Mughal empire the services of the bravest warriors in India. The steadfast loyalty of the Rajputs became an important factor in the consolidation and expansion of the empire.

Conquest of Gujarat, Bihar and Bengal

o Since the death of Bahadur Shah, Gujarat was in a state of confusion. Also, the Mirzas who rebelled against the Mughal rule had taken refuge in Gujarat. Akbar did not want Gujarat which was a rich province to become a rival centre of power. In c. **1572 CE, Akbar advanced on Ahmedabad via Ajmer and defeated Muzaffar Shah, the Gujarat ruler** without much resistance.

o Akbar built the **Buland Darwaza at Fatehpur Sikri to celebrate the win of Gujarat**. Akbar then turned his attention to the Mirzas who held Broach, Baroda and Surat. In a short span of time, most of the principalities of Gujarat were brought under Mughal control.

o Akbar **organised Gujarat into a province and placed it under Mirza Aziz Koka** and returned to the capital. However, just within six months, rebellions broke out all over Gujarat. Hearing the news, Akbar quickly marched out of Agra and reached Ahmedabad in just ten days. He defeated the enemy and suppressed the rebellion (c. 1573 CE). After this, Akbar turned his attention to Bengal.

o **Bengal and Bihar were dominated by the Afghans**. They had also captured Orissa and killed its ruler. Internal fights among the Afghans and the declaration of independence by the new ruler, Daud Khan, gave Akbar the excuse he was seeking. Akbar first captured Patna and then returned to Agra, leaving **Khan-i-Khanan Munaim Khan** in charge of the campaign.

o The Mughal forces invaded Bengal and Daud Khan was forced to sue for peace. However, he soon revolted and in a stiff battle in Bihar in c. 1576, Daud Khan was defeated and executed on the spot. This ended the last Afghan kingdom in Northern India. It also brought an end to the first phase of Akbar's expansion of the empire.

Rebellions and further expansion of the Mughal Empire

o Around c. 1580 – 1581 CE, Akbar had to deal with a series of rebellions, particularly in Bengal, Bihar, Gujarat and the northwest.

o The **main cause of the rebellion was the strict enforcement of the dagh system** or branding of the horses of the jagirdars and strict accounting of their income. The discontent was further aggravated by some religious divines who were unhappy at Akbar's liberal views, and his policy of resuming the large revenue-free grants of land which had been obtained by them sometimes illegally. The rebellions kept the Mughal empire distracted for almost two years (c. 1580 – 1581 CE).

o Due to the mishandling of the situation by local officials, Bengal and almost the whole of Bihar passed into the hands of the rebels who proclaimed Mirza Hakim (who was in Kabul) as their ruler. Akbar sent a large force under **Raja Todar Mal and Shaikh Farid Bakshi**, and brought the situation in the east under control. Raja Man Singh and Bhagwan Das offered a stout defense to Mirza Hakim's attack on Lahore. Akbar crowned his success by marching to Kabul (c. 1581 CE). **Akbar handed over Kabul to his sister, Bakhtunissa Begum** and later on, **Raja Man Singh was appointed governor of Kabul** and it was handed over to him as jagir.

o Abdullah Khan Uzbek, the hereditary enemy of the Mughals, had been gradually gaining strength in Central Asia. In c. 1584 CE, he overran Badakhshan which had been ruled by the Timurids and next, he was aiming at Kabul. Mirza Hakim and the Timurid princes who were ousted from Badakhshan now appealed to Akbar for help. Akbar sent Man Singh to Kabul and himself moved to Attok on the river Indus. Akbar wanted to block all roads to the Uzbeks, so he sent expeditions against Kashmir (c. 1586 CE) and against Balochistan. The **whole of Kashmir including Ladakh and Baltistan** (called Tibet Khurd and Tibet Buzurg) came under the control of Mughals.

o Expeditions were also sent to clear the **Khyber pass which had been blocked by the rebellious tribesmen of Roshanai.** The sect was established by a soldier called Pir Roshanai and his son Jalala was the head of the sect. In this expedition, Akbar's favourite, **Raja Birbal lost his life.** But the tribesmen were gradually forced to submit.

o In c. 1590 CE, the conquest of Sindh opened the trade down the river Indus for Punjab. By c. 1595 CE, Mughal supremacy was established over the northwest region. Akbar stayed at Lahore till c. 1598 CE when the death of Abdullah Uzbek finally removed the threat from the side of the Uzbeks.

The consolidation of the northwest and fixing a frontier of the empire were two major contributions of Akbar.

o After the consolidation of the northwest region, Akbar turned his attention towards the affairs of eastern and western India, and the Deccan.

o In c. **1592 CE, Raja Man Singh, the Mughal governor of Bengal conquered Orissa** which at that time was under the control of Afghan chiefs.

o He also **conquered Cooch-Bihar and parts of East Bengal, including Dacca**.

o **Mirza Aziz Koka, the foster brother of Akbar, brought Kathiawar** in the west under the domain of the Mughal empire.

o In c. 1591 CE, Akbar adopted a policy of aggression towards the **Deccan** and sent an expedition to the Deccan under the command of **Prince Murad (who was the governor of Gujarat) and Abdul Rahim Khan Khanan.**

o In c. 1595 CE, **Mughal forces invaded Ahmednagar and Chand Bibi (who was the sister of the deceased Sultan Burhan) was defeated**.

o After huge losses, an agreement was signed and Chand Bibi ceded Berar to the Mughals. After some time, Chand Bibi tried to regain control over Berar with the help of Adil Shahi and Qutab Shahi.

o The Mughals suffered huge losses but could retain their position.

o Meanwhile, differences grew between Prince Murad and Abdul Rahim Khan Khanan that weakened the Mughal position.

o Akbar **recalled Khan Khanan and deputed Abu Fazl to the Deccan**.

o After Prince Murad's death in c. **1598 CE, Prince Daniyal (youngest son of Akbar) and Khan Khanan were sent to the Deccan and Ahmednagar was again captured**.

o Soon, Mughals also captured Asirgarh and adjoining regions bringing them into direct conflict with the Marathas.

o Akbar died in c. 1605 CE and was buried at Sikandra (near Agra).

Art and Architecture

o During the reign of Akbar, **many indigenous art styles were encouraged** which led to the **common use of sandstone**.

o Akbar built a series of forts, the most famous of which is the fort at **Agra (in red sandstone).** His other forts are at **Lahore and Allahabad**.

o Akbar built Fatehpur Sikri (city of victory) near Agra. Many buildings of **Gujarati and Bengali styles are found** in this complex. The most magnificent building in it is the Jama Masjid and the gateway to it is called Buland Darwaza (176 ft high), built in c. 1572 CE to commemorate Akbar's victory over Gujarat. Other important buildings at Fatehpur Sikri are **Jodha Bai's palace** and **Panch Mahal** with five storeys.

o He **built his own tomb at Sikandra (near Agra) which was completed by Jahangir**.

o Akbar **built a temple of Govindadeva at Vrindavan**.

o He also built Jahangir Mahal in Agra Fort.

o Akbar commissioned the illustrations of several literary and religious texts. He invited a large number of painters from different parts of the country to his court. Both Hindus and Muslims joined in this work.

o **Baswan, Miskina** and **Daswant** attained great positions as Akbar's court artists.

o Illustrations of **Persian versions of Mahabharata and Ramayana were produced in miniature form**.

o Many other Indian fables became miniature paintings in the art studio established by Akbar.

o Historical works like Akbarnama also remained the main themes of Mughal paintings.

o **Hamzanama** is considered to be the most important work which consisted of 1200 paintings. Indian colours such as peacock blue, Indian red began to be used.

o Akbar **patronised Tansen of Gwalior** who composed many ragas..

o The Persian language became widespread in the Mughal empire by the time of Akbar's reign. **Abul Fazl** was a great scholar and historian of his period. He set a style of prose writing and it was followed for many generations.

o Many historical works were written during this period. They include **Ain-i-Akbari and Akbarnama by Abul Fazl**.

o The **translation of Mahabharata into the Persian language was done under the supervision of Abul Faizi (brother of Abul Fazl).**

o **Utbi and Naziri** were the other two leading Persian poets. From the time of Akbar, Hindi poets were attached to the Mughal court.

o The most famous Hindi poet was Tulsidas, who wrote the **Hindi version of the Ramayana – the Ramacharitmanas.**

Q1. Vishnugadh Pipalkoti and Singoli Bhatwari hydropower projects are proposed in the state of

(a) Himachal Pradesh

(b) Maharashtra

(c) Uttarakhand

(d) Madhya Pradesh

Q2. Which of following statements is/are correct?

1. The Arctic Council is a high-level intergovernmental body set up by the Montreal declaration.

2. India has observer status in the Arctic Council.

Choose the correct code:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q3. Match the following:

Places		Locations	
A.	Nuuk	1.	Sweden
B.	Kiruna	2.	Norway
C.	Fairbanks	3.	Alaska
D.	Svalbard	4.	Greenland

Code:

(a) A-4, B-1, C-3, D-2

(b) A-3, B-2, C-4, D-1

(c) A-2, B-3, C-1, D-4

(d) A-1, B-4, C-2, D-3

Q4. Which of following statements is/are correct with reference to Himalayas?

1. Nanga Parbat, lies just south of the northernmost bend of the Indus river.

2. Namcha Barwa, lies immediately west of the great bend of the Yarlung Tsangpo River.

Choose the correct code:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q5. Consider the following statements:

1. A beel is a lake-like wetland with static water.

2. Deepor Beel is located in West Bengal.

Which of the statements given above is/are correct?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q6. Trimeresurus Salazar discovered from Arunachal Pradesh is new species of:

(a) Fresh water turtle

(b) Alligator

(c) Pangolin

(d) Snake

Q7. Consider the following statements:

1. The Malabar exercise started in 1992 as a bilateral drill between India and Japan in the Indian Ocean.

2. USA became a permanent member in 2015 in the Malabar exercise.

Which of the statements given above is/are correct?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q8. Recently commissioned ICGS Vigraha is a/an

(a) Submarine

(b) Air Craft Carrier

(c) Offshore Patrol Vessel

(d) Fast speed attack ship

Q9. Which of following statements is/are correct?

1. The system of dyarchy at centre was established under Govt. of India Act, 1919.

2. The system of dyarchy in provinces was established under Govt. of India Act, 1935.

Choose the correct code:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q10. Chagos Archipelago or Chagos Islands lie in the:

(a) Indian Ocean

(b) South Atlantic Ocean

(c) Pacific Ocean

(d) North Atlantic Ocean

Q11. Which of following statements is/are correct?

1. BCG, or Bacille Calmette-Guerin, is a vaccine for tuberculosis (T(B) disease.

2. BCG is used in many countries with a high prevalence of TB to prevent childhood tuberculous meningitis and miliary disease.

Choose the correct code:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q12. Which of following statements is/are correct?

1. Chagos Islands lie to the south of Mauritius.

2. Madagascar lies to the east of Mauritius.

Choose the correct code:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q13. Bum La and Kepang La are the mountain passes in

(a) Ladakh

(b) Arunachal Pradesh

(c) Uttarakhand

(d) Himachal Pradesh

Q14. Which of the following statements is/are correct?

1. A supernova is an exploding star that blasts part of the star into space.

2. The supermassive black hole at the center of the Milky Way galaxy is called Sagittarius A.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q15. Kalagarh Tiger Reserve is located in the state of

(a) Rajasthan   (b) Madhya Pradesh

(c) Maharashtra   (d) Uttarakhand

Q16. Consider the following statements:
1. Bihar does not have any Tiger Reserve.
2. Kamlang Tiger Reserve is in Arunachal Pradesh.

Which of the statements given above is/are correct?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q17. Consider the following statements:
1. The objective of Gaganyaan is to carry a crew of three to Low Earth Orbit (LEO).
2. GSLV Mk III has been identified for the launching Gaganyaan.

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

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q18. Consider the following statements:
1. The Second Anglo-Afghan War led to the acceptance of Durand line as the border between Afghanistan and British India.
2. The Third Anglo-Afghan War was known as the War of Independence in Afghanistan against British.

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

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q19. Consider the following statements:
1. Greenland is an autonomous territory of Norway.
2. Svalbard is an autonomous territory of Denmark.

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

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q20. Consider the following statements:
1. Davis Strait lies between Greenland and Iceland.
2. Baffin Bay lies between Greenland and Canada.

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

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q21. Consider the following statements:
1. In a nuclear fusion reaction, two light nuclei merge to form a single heavier nucleus.
2. Nuclear fusion process releases energy because the total mass of the resulting single nucleus is less than the mass of the two original nuclei.

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

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q22. Consider the following statements:
1. A cyclone is a system of winds rotating counter-clockwise in the Northern Hemisphere around a low pressure center.
2. An anticyclone's winds rotate clockwise in the Northern Hemisphere around a center of high pressure.

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

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q23. **Mount Kamet and Mana Peak lie in**
(a) Ladakh
(b) Uttarakhand
(c) Himachal Pradesh
(d) Sikkim

Q24. **Consider the following statements:**
1. The G7 (Group of Seven) is an organisation of the world's seven largest so-called advanced economies.
2. Russia was excluded from G8 in 2018.

Which of the above statement/s is/are correct?
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Q25. **Somalia does not share land border with which of the following countries?**
(a) Ethiopia
(b) Djibouti
(c) Kenya
(d) Eritrea

Q26. **Which of the following states does not border Myanmar?**
(a) Mizoram
(b) Manipur
(c) Nagaland
(d) Assam

Q27. **Which of following statements is/are correct?**
1. G-Secs with maturities less than 1 year are called T-bills.
2. G-Secs with maturities of more than one year are called bonds.

Choose the correct code:
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Q28. **Which of following statements is/are correct?**
1. The Indo-Pacific comprises the tropical waters of the Indian Ocean, the western and central Pacific Ocean.
2. The Indo-Pacific has "symbiotic link" with the Quadrilateral Security Dialogue.

Choose the correct code:
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Q29. **Angul and Bhadrak are the districts in**
(a) Jharkhand
(b) Odisha
(c) Chhattisgarh
(d) Madhya Pradesh

Q30. **Which of following statements is/are correct?**
1. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.
2. The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).

Choose the correct code:
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Q31. **Nuwara Aliya is a hill station in**
(a) Myanmar
(b) Bhutan
(c) Tibet
(d) Srilanka

Q32. Which of following statements is/are correct?
1. The Aravalis stretches from Delhi across the states of Haryana, Rajasthan and Gujarat.
2. The Aravali Hills are older than the Himalayas.

Choose the correct code:

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

Q33. Cherrapunji lies in
(a) Khasi Hills
(b) Patkai Hills
(c) Lushai Hills
(d) Naga Hills

Q34. Consider the following statements:
1. Cess is a form of tax charged/levied over and above the base tax liability of a taxpayer.
2. If the cess collected in a particular year goes unspent, it can be allocated for other purposes.

Which of the statements given above is/are correct?

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

Q35. Which of following statements is/are correct?
1. Chilika Lake was designated the first Indian wetland of international importance under the Ramsar Convention.
2. Chilika Lake lies at the mouth of the Daya River.

Choose the correct code:

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

Q36. Which of the following countries does not border Jordan?
(a) Iraq
(b) Turkey
(c) Syria
(d) Israel

Q37. Which of following statements is/are correct?
1. The Prompt Corrective Action (PCA) framework deems banks as risky if they slip below certain norms on three parameters — capital ratios, asset quality and profitability.
2. PCA has four risk threshold levels (1 being the lowest and 4 the highest).

Choose the correct code:

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

Q38. River Jordan forms the boundary between
(a) Jordan and Lebanon
(b) Jordan and Syria
(c) Jordan and Israel
(d) Jordan and Iraq

Q39. Which of following statements is/are correct?
1. The Global Hunger Index (GHI) is a tool designed to comprehensively measure and track hunger at global, regional, and national levels.
2. GHI scores are calculated every alternate year to assess progress and setbacks in combating hunger.

Choose the correct code:

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

Q40. Which of the following statements is/are correct?

1. A bond's yield refers to the expected earnings generated and realized on a fixed-income investment over a particular period of time.
2. High-Yield Bonds are better investments than Low-Yield Bonds.

Select the correct answer using the code given below:

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

Q41. Which of following statements is/are correct?

1. The 8th Schedule of the Indian Constitution deals with the division of powers between the Union government and State governments.
2. Public Order and Public Health come in Concurrent List.

Choose the correct code:

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

Q42. West Bank lies between

(a) Israel and Lebanon
(b) Israel and Jordan
(c) Israel and Syria
(d) Israel and Egypt

Q43. Which of the following statements is/are correct?

1. The top five countries of the world producing solar power sequentially are United States, China, Japan, India, and Germany.
2. India has emerged as the third-largest solar energy producer in the world.

Select the correct answer using the code given below:

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

Q44. Sakteng Wildlife Sanctuary is in which of the following countries?

(a) India   (b) Bhutan
(c) Nepal   (d) Sri Lanka

Q45. Formosa is the earlier name of

(a) Hainan   (b) Hong Kong
(c) Macau   (d) Taiwan

Q46. Arak, Bushehr and Darkhovin are the

(a) nuclear facilities in Iran.
(b) rivers in Kyrgyzstan.
(c) are the sub-species of Himalayan fur goat.
(d) are the ports in Israel.

Q47. Which of following statements is/are correct?

1. Chief Election Commissioner (CEC) may be removed from office through a motion adopted by Parliament on grounds of 'proved misbehaviour or incapacity'.
2. The Constitution does not use the word 'impeachment', for the removal of the judges, CAG, CEC.

Choose the correct code:

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

Q48. Which of the following countries does not border Caspian Sea?

(a) Iran   (b) Azerbaijan
(c) Armenia   (d) Turkmenistan

Q49. Which of the following states has a border with Meghalaya?

(a) Assam   (b) Manipur

(c) Mizoram   (d) Tripura

Q50. **Nongkhyllem Wildlife Sanctuary is in**
(a) Mizoram   (b) Manipur
(c) Nagaland   (d) Meghalaya

Q51. **Consider the following statements:**
1. Fiscal Deficit is the difference between the total income of the government (total taxes and non-debt capital receipts) and its total expenditure.
2. A recurring high fiscal deficit means that the government has been spending beyond its means.

Which of the above statement/s is/are correct?
(a) 1 only   (b) 2 only
(c) Both 1 and 2   (d) Neither 1 nor 2

Q52. **Which of the following is not a member of 'Gulf Cooperation Council'?**
(a) Iran   (b) Saudi Arabia
(c) Oman   (d) Qatar

Q53. **Taiwan Strait connects**
(a) East China Sea and South China Sea
(b) East China Sea and Yellow Sea
(c) South China Sea and Yellow Sea
(d) East China Sea and Sea of Japan

Q54. **Consider the following statements:**
1. There is an inverse relation between bond prices and bond yield.
2. When the interest rates rise, the bond prices fall.
3. Higher fiscal deficit may lead to low bond yield.

Which of the statements given above is/are correct?
(a) 1 only   (b) 2 only
(c) 1 and 2   (d) 1, 2 and 3

Q55. **Which of the following is not a Scandinavian country?**
(a) Denmark   (b) Norway
(c) Sweden   (d) Belgium

Q56. **Like Minded Developing Countries (LMD(C) is a group for forging a common position on**
(a) Renewal Energy
(b) Climate Change
(c) Disarmament
(d) Preventing trade in endangered species

Q57. **Which of the following countries does not border Sudan?**
(a) Libya   (b) Chad
(c) Eritrea   (d) Djibouti

Q58. **Which of the following passes lies on McMahon Line?**
(a) Chang La   (b) Diphu Pass
(c) Jelep La   (d) Bara Lacha

Q59. **Which of the following countries does not border Caspian Sea?**
(a) Iran   (b) Kazakhstan
(c) Azerbaijan   (d) Armenia

Q60. **Which of the following countries does not border Myanmar?**
(a) Thailand   (b) Cambodia
(c) China   (d) Laos

Q61. Which of following statements is/are correct?

1. The Indo-Pacific comprises the tropical waters of the Indian Ocean, the western and central Pacific Ocean.
2. The Indo-Pacific has "symbiotic link" with the Quadrilateral Security Dialogue.

Choose the correct code:

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

Q62. River Kaladan flows from

(a) Manipur to Myanmar
(b) Mizoram to Myanmar
(c) Nagaland to Myanmar
(d) Bangladesh to Myanmar

Q63. Which of following statements is/are correct?

1. Fiscal policy refers to the use of government spending and tax policies to influence economic conditions.
2. Fiscal policy is largely based on ideas from John Nash.

Choose the correct code:

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

Q64. Which of the following ports is not situated in Sri Lanka?

(a) Hambantota
(b) Sittwe
(c) Kankesanthurai
(d) Trincomalee

Q65. Eritrea, Djibouti and Somalia border which of the following countries?

(a) Ethiopia   (b) South Sudan
(c) Sudan   (d) Kenya

Q66. Which of the following straits lies between Iran and UAE and connects Persian Gulf with Gulf of Oman?

(a) Marmara   (b) Hormuz
(c) Aqaba   (d) Bosphorus

Q67. Which of the following statements is/are correct?

1. Net-zero is also referred to as carbon-neutrality.
2. Net-zero means that a country would bring down its emissions to zero.

Select the correct answer using the code given below:

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

Q68. Which of following statements is/are correct?

1. Tibetan Plateau is the world's highest and largest plateau.
2. The Tibetan Plateau is often referred to as "the Roof of the World".

Choose the correct code:

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

Q69. Arrange the following countries from east to west?

(a) Turkmenistan, Azerbaijan, Armenia, Georgia
(b) Azerbaijan, Armenia, Turkmenistan, Georgia
(c) Turkmenistan, Armenia, Azerbaijan, Georgia
(d) Armenia, Azerbaijan, Turkmenistan, Georgia

Q70. Which of following statements is/are correct?

1. The core sector index has a 50.27 per cent weighting in the Index of Industrial Production (IIP).
2. The core sector index captures output in eight infrastructure industries — coal, electricity, crude oil, natural gas, steel, cement, fertilizers, and refinery products.

Choose the correct code:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q71. Which of the following statements is/are correct?

1. CRISIL is a subsidiary of American company S&P Global.
2. CRISIL, was the first credit rating agency in India, introduced in 1988 by the ICICI and UTI.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q72. Which of the following statements is/are correct?

1. A credit rating is a quantified assessment of the creditworthiness of a borrower in general terms.
2. A credit rating or score can be assigned to any entity that seeks to borrow money—an individual, a corporation, a state or provincial authority, or a sovereign government.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q73. Which of the following statements is/are correct?

1. World Heritage Sites are designated by UNESCO for having cultural, historical, scientific or other form of significance.
2. The sites are judged to contain cultural and natural heritage around the world considered to be of outstanding value to humanity.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q74. Which of the following best explains 'twin deficits' in the economy?

(a) Fiscal Deficit and Current Account Deficit

(b) Fiscal Deficit and Revenue Deficit

(c) Fiscal Deficit and Capital Account Deficit

(d) Fiscal Deficit and Budgetary Deficit

Q75. Consider the following statements:

1. FATF is the global money laundering and terrorist financing watchdog.
2. FATF was established in 1989 by a Group of Seven (G-7) Summit in Paris.

Which of the statements given above is/are correct?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q76. Kalpathy chariot festival is held in which of the following states?

(a) Kerala   (b) Tamil Nadu

(c) Odisha   (d) Telangana

Q77. Pochampally sari belongs to which of the following states?

(a) Tamil Nadu

(b) Telangana

(c) Andhra Pradesh

(d) Kerala

Q78. Consider the following statements:

1. Norovirus is a very contagious virus that causes vomiting and diarrhea.

2. Anyone can get infected and sick with norovirus.

Which of the statements given above is/are correct?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q79. Amazon rainforest does not occur in which of the following countries?

(a) Bolivia   (b) Venezuela

(c) Ecuador   (d) Uruguay

Q80. Uruguay shares land borders with

(a) Argentina and Brazil

(b) Argentina and Paraguay

(c) Paraguay and Bolivia

(d) Bolivia and Brazil

Q81. Which of the following countries does not border Bolivia?

(a) Argentina   (b) Ecuador

(c) Peru   (d) Chile

Q82. Madeira and Negro Rivers are the tributaries of

(a) Zambezi   (b) Nile

(c) Amazon   (d) Congo

Q83. Global Climate Risk Index is released by

(a) Organization for Economic Cooperation and Development (OECD)

(b) Global Alliance on Health and Pollution (GAHP)

(c) Earth System Governance Project (ESGP)

(d) Germanwatch

Q84. Kaiser-i-Hind is the state butterfly of which of the following states?

(a) Uttarakhand

(b) Himachal Pradesh

(c) Sikkim

(d) Arunachal Pradesh

Q85. Which of following statements is/are correct?

1. Amazon River is the largest river by discharge volume of water in the world.

2. Amazon Rainforest is a moist broadleaf tropical rainforest.

Choose the correct code:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q86. Which of following statements is/are correct?

1. The Doha Round of WTO was launched in 2001 to achieve major reform of the international trading system through the introduction of lower trade barriers and revised trade rules.

2. The Ministerial Conference is the highest decision-making body of the WTO and usually meets every two years.

Choose the correct code:

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

Q87. **Which of following statements is/are correct?**

1. Part VI of the Indian Constitution describes the role and responsibilities of Comptroller and Auditor General (CAG) of India.
2. Article 148 of the Constitution of India establishes the authority of CAG.

Choose the correct code:
(a) 1 only   (b) 2 only
(c) Both 1 and 2   (d) Neither 1 nor 2

Q88. **Which of following statements is/are correct?**

1. Fiscal policy refers to the use of government spending and tax policies to influence economic conditions.
2. Fiscal policy is largely based on ideas from John Nash.

Choose the correct code:
(a) 1 only   (b) 2 only
(c) Both 1 and 2   (d) Neither 1 nor 2

Q89. **Which of the following ports is not situated in Sri Lanka?**

(a) Hambantota
(b) Sittwe
(c) Kankesanthurai
(d) Trincomalee

Q90. **Which of the following countries does not border Slovak Republic?**

(a) Romania   (b) Hungary
(c) Ukraine   (d) Poland

Q91. **Makassar Strait connects**

(a) Sulu Sea and Celebes Sea
(b) Celebes Sea and Molucca Sea
(c) Molucca Sea and Banda Sea
(d) Celebes Sea and Java Sea

Q92. **Which of the following statements is/are correct?**

1. Net-zero is also referred to as carbon-neutrality.
2. Net-zero means that a country would bring down its emissions to zero.

Select the correct answer using the code given below:
(a) 1 only   (b) 2 only
(c) Both 1 and 2   (d) Neither 1 nor 2

Q93. **Which of following statements is/are correct?**

1. Ozone (O3) is a highly reactive gas composed of three oxygen atoms.
2. Ozone (O3) is both a natural and a man-made product that occurs in the Earth's upper atmosphere (the stratosphere) and lower atmosphere (the troposphere).

Choose the correct code:
(a) 1 only   (b) 2 only
(c) Both 1 and 2   (d) Neither 1 nor 2

Q94. **Arrange the following seas from east to west?**

(a) Banda Sea -- Arafura Sea -- Flores Sea – Java Sea
(b) Flores Sea – Java Sea - Arafura Sea - Banda Sea
(c) Arafura Sea - Banda Sea – Flores Sea – Java Sea
(d) Arafura Sea - Banda Sea– Java Sea - Flores Sea

Q95. **Which of following statements is/are correct?**

1. Sulu Sea lies to the east of Philippines.

2. Dili is the capital of East Timor.

Choose the correct code:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q96. **Which of the following statements is/are correct?**

1. 2+2 Ministerial is the highest-level institutional mechanism between the two countries.

2. 2+2 is a format of dialogue where the defence/foreign ministers or secretaries meet with their counterparts from another country.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q97. India does not hold 2+2 dialogue with which of the following countries?

(a) France   (b) Australia

(c) Japan   (d) USA

Q98. **Which of the following statements is/are correct?**

1. Joint Parliamentary Committee (JPC) is set up for a specific object and duration.

2. Public Accounts Committee (PAC) is constituted every year.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q99. **Which of the following statements is/are correct?**

1. Central Bureau of Investigation (CBI) derives power to investigate from the Delhi Special Police Establishment Act, 1946.

2. CBI operates under the jurisdiction of Ministry of Home Affairs.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Q100. Consider the following statements:

1. The Directorate of Enforcement (E(D) is a law enforcement agency and economic intelligence agency.

2. ED is part of the Department of Revenue, Ministry of Finance, Government Of India.

Which of the statements given above is/are correct?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

ANSWERS

1	2	3	4	5	6	7	8	9	10
c	b	a	c	a	d	d	c	d	a
11	12	13	14	15	16	17	18	19	20
c	d	b	c	d	b	c	b	d	b
21	22	23	24	25	26	27	28	29	30
c	c	b	a	d	d	c	c	b	c
31	32	33	34	35	36	37	38	39	40
d	c	a	a	c	b	a	c	a	a
41	42	43	44	45	46	47	48	49	50
d	b	b	b	d	a	c	c	a	d
51	52	53	54	55	56	57	58	59	60
c	a	a	c	d	b	d	b	d	b
61	62	63	64	65	66	67	68	69	70
c	b	a	b	a	b	a	c	a	b
71	72	73	74	75	76	77	78	79	80
c	c	c	a	c	a	b	c	d	a
81	82	83	84	85	86	87	88	89	90
b	c	d	d	c	c	b	a	b	a
91	92	93	94	95	96	97	98	99	100
d	a	c	c	b	c	a	c	a	c