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GS 2 : Polity, Governance, International Relations

1. A ceaseless plight

The article throws light upon the lives of hundreds of fishermen who have been languishing in Pakistan's prisons for years with no end in sight.

Issue:

- Fishermen from India end up in Pakistani waters and are arrested by authorities for illegally entering their territory.
- The problem is aggravated due to the failure in agreement over the maritime boundary and the dispute over Sir Creek in Kutch.

Details:

- An inhuman and skewed system involves India and Pakistan, in which the **mortal remains of prisoners are not repatriated for months.**
- It highlights the underlying issue of **basic human rights.**
- **Fishermen from the Saurashtra region of Gujarat often get arrested when they unintentionally cross over into Pakistani waters.**
- More than 300 Indian fishermen remain in Pakistan's custody in Malir jail.
- Ideally, prisoners should be released and repatriated the day they complete their prison sentence. But this has happened in just one case.

Agreement between India and Pakistan - Attempts to resolve the issue:

- India and Pakistan signed the **Agreement on Consular Access in 2008.** Despite some lacunae, it was significant.
 - Section 4 of the agreement said, "**Each government shall provide consular access within three months to nationals of one country, under arrest, detention or imprisonment in the other country.**"
 - Section 5 of the agreement stated, "**Both governments agree to release and repatriate persons within one month of confirmation of their national status and completion of sentences.**"

Consular access is an exception. Without it, the nationality of the person is not confirmed and the repatriation process cannot begin. Though the agreement does not state a time limit, there are numerous instances in which both countries have not confirmed nationality for as long as 18 months, during which the arrested men languish in jails.

Also, in 2007, **India and Pakistan set up a joint judicial committee on prisoners comprising four retired judges from each side.**

- The committee used to convene twice a year to meet prisoners. It made unanimous recommendations, including on the release and repatriation of fishermen and women prisoners.
- Its last meeting was held in 2013, after which it was discontinued.
- In 2018, efforts were made to revive it, but Pakistan is yet to nominate judges or call for a meeting. The delay is costing lives.

Way Forward:

- The fishing community has ended up paying a huge price over the years.
- The **confiscated boats are seldom returned**. The **livelihood of the fishermen is dependent on the boats**. Hence, when they are captured, entire families suffer the brunt.
- The **lack of clear boundaries or demarcation for the disputed territory** adds to the difficulty of steering clear of the troubled area.
- Installing **tracking devices in the boats** can help in sending out disaster alerts or when the boat is seized by another country.
- **Identification cards** can help in verifying the identification of arrested fishermen.

2. India-Japan

Why in News

The Prime Minister in a telephonic conversation with his Japanese counterpart discussed various issues including high technology, skill development and fighting the Covid-19 pandemic together.

Key Points

- **About:**
 - **On Covid-19 Situation:**
 - Highlighted the **importance of close India-Japan cooperation** to overcome challenges posed by the pandemic, such as by working together to **create resilient, diversified and trustworthy supply chains**, ensuring **reliable supply of critical materials and technologies**, and developing **new partnerships in manufacturing and skill development**.
 - In this context, the two leaders **emphasized the need for early operationalization of the Specified Skilled workers (SSW)**

agreement in order to synergize their strengths and achieve mutually beneficial outcomes.

- They also **highlighted the Mumbai-Ahmedabad High Speed Rail (MAHSR) project** as a shining example of their cooperation.
- **On Cooperation for Indo-Pacific:**
 - Confirmed the **importance of Japan-India bilateral and multilateral cooperation**, including **Japan-Australia-India-US quadrilateral cooperation**, towards realising a free and open Indo-Pacific.
- **On Possible Cooperation in Various fields:**
 - Like 5G, submarine cables, strengthening of industrial competitiveness, diversification of supply chains and development projects in the northeastern state.
- **Other Recent Developments Between India and Japan:**
 - Recently, **India, Japan and Australia** have formally launched the **Supply Chain Resilience Initiative (SCRI)** in a move to counter China's dominance of the supply chain in the Indo-Pacific region.
 - The SCRI aims to create a virtuous cycle of enhancing supply chain resilience with a view to eventually attaining strong, sustainable, balanced and inclusive growth in the region.
 - **Japan has finalised loans** and a grant totalling around 233 billion yen for **several key infrastructure projects in India**, including for a project in the Andaman and Nicobar islands.
 - In **2020**, India and Japan **signed a logistics agreement** that will allow armed forces of both sides to coordinate closely in services and supplies. The agreement is known as the **Acquisition and Cross-Servicing Agreement (ACSA)**.
 - In 2014, India and Japan upgraded their relationship to '**Special Strategic and Global Partnership**'.
 - The India-Japan **Comprehensive Economic Partnership Agreement (CEPA)** that came into force in **August 2011** covers trade in goods, services, movement of natural persons, investments, Intellectual Property Rights, custom procedures and other trade related issues.
 - **Defence Exercises:**

- India and Japan defence forces organize a series of bilateral exercises namely, **JIMEX** (naval), **SHINYUU Maitri** (Air Force), and **Dharma Guardian** (Army). Both countries also participate in **Malabar exercise** (Naval Exercise) with the USA.

Way Forward

- More collaboration and cooperation can prove beneficial to both nations, since India needs sophisticated technology from Japan.
- There is a huge potential with respect to **Make in India**. Joint ventures could be created by merging Japanese digital technology with Indian raw materials and labour.
- Close cooperation is the best measure to combat China's growing role in Asia and Indo-Pacific, in physical as well as digital space.

3. SC refuses to interfere in work of HCs

Context:

A special bench of the Supreme Court questioned the Centre, the States and the authorities on the various aspects of COVID management in a suo motu hearing called, 'In re: distribution of essential supplies and services during COVID-19'.

Details:

- The Supreme Court said that it would not interfere in the work done by the various High Courts to monitor life-saving COVID-19 management amid a second wave of the pandemic.
- It asserted that the High Courts are best suited to make an assessment of ground realities in each State and find flexible solutions for problems faced by citizens.
- However, it said that it would examine issues that travel beyond the boundaries of States and have national repercussions.

4. HRW: Israel is committing 'apartheid'

What's in News?

Human Rights Watch said that Israel is committing the crime of apartheid by seeking to maintain Jewish domination over Palestinians and its own Arab population.

Details:

- Human Rights Watch pointed to measures, including movement restrictions, land confiscation, forcible population transfer, denial of residency rights and suspension of civil rights.
- It details how Israel has sought to maintain Jewish-Israeli hegemony over the Palestinian people from the Jordan River to the Mediterranean Sea.
- Israel is currently under investigation by the International Criminal Court (ICC) for alleged war crimes.
 - The investigation looks at events in the territories from 2014 onwards.
 - It focuses on the Gaza war fought between Israel and Hamas in the summer of 2014, actions by the Israeli army during hostilities along the Gaza fence in 2018, as well as Israel's settlement activities in the West Bank.

The HRW report recommended that the international community must adopt a rights-based and accountability approach regarding engagement with Israel instead of relying on the peace process.

5. Marking the beginning of a green era

Context:

Two new initiatives the '**Saudi Green Initiative**' and the '**Middle East Green Initiative**' have been launched by the Deputy Prime Minister of the Kingdom of Saudi Arabia, to combat the threat of climate change.

Details:

- Saudi Arabia is committed to lead regional efforts to address climate change and has been making steady progress in this direction.
- One of the main pillars of the Saudi G20 presidency was to "safeguard the planet".
 - The G20 introduced initiatives like establishing a **Global Coral Reef Research and Development Accelerator Platform** to accelerate scientific knowledge and technology development in support of coral reef survival, conservation, resilience, adaptation and restoration.
 - G20 leaders also acknowledged the **Circular Carbon Economy (CCE) Platform** as a **tool towards affordable, reliable, and secure energy and economic growth**.

Saudi Green Initiative:

- It aims to **raise the vegetation cover, reduce carbon emissions, combat pollution and land degradation, and preserve marine life**. 10 billion trees will be planted in the Kingdom.

- Saudi Arabia is working towards **raising the percentage of its protected areas to more than 30% of its total land area exceeding the global target of 17%.**

Middle East Green initiative:

- As part of this initiative, Saudi Arabia will work with the **Gulf Cooperation Council countries and regional partners** to plant an additional 40 billion trees in the West Asian region.
- It represents **5% of the global target of planting one trillion trees and reducing 2.5% of global carbon levels.**

India and Saudi Arabia efforts in tackling climate change:

- Saudi Arabia has joined the **International Solar Alliance**, hence promoting cooperation in the renewable energy sector.
- **Several MoUs and agreements in key sectors including renewable energy have been signed.**

Working towards Vision 2030:

- In 2016, the Crown Prince unveiled Vision 2030, a comprehensive road map to improve the quality of life of the citizens of the country.
 - As part of this, Saudi Arabia carried out a **comprehensive restructuring of the environmental sector and established the Environmental Special Forces in 2019.**
 - With the **NEOM project and The Line**, Saudi Arabia has already redefined the idea of sustainable habitats.

The pandemic has only strengthened Saudi Arabia's resolve to realise the goals of Vision 2030 and become one of the major producers of renewable energy with a capacity to generate 9.5 GW by 2023.

Note:

- Saudi Arabia currently operates the **largest carbon capture and utilisation plant in the world**, turning half a million tonnes of CO₂ annually into products such as fertilizers and methanol.
- It also **operates one of the region's most advanced CO₂-enhanced oil recovery plants that captures and stores 8,00,000 tonnes of CO₂ annually.**
- India has made remarkable commitments to tackle climate change and is on track to achieve its Paris Agreement targets.
- India's renewable energy capacity is the **fourth largest in the world.**
- India has an ambitious target of achieving **450 gigawatts of renewable energy capacity by 2030.**

GS 3 : Economy, Science and Technology, Environment

6. A patently wrong regime

The **reaffirmation of intellectual property rules** has served as a lethal **barrier to the right to access healthcare** over the last few decades. The article throws light upon how over the last few decades, intellectual property rules have served as a lethal barrier to the right to access healthcare.

Context:

- India and South Africa had submitted a joint petition to the WTO, requesting a **temporary suspension of rules under the 1995 Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)**.

Details:

- A waiver was sought to the extent that the **TRIPS rules impinged on the containment** and treatment of COVID-19. The request for the waiver has, since, found support from more than 100 nations.
- But a **small group of states including the U.S., the European Union, the U.K. and Canada continue to block the move**.
- Their reluctance comes despite these countries having already secured the majority of available vaccines, with the stocks that they hold far exceeding the amounts necessary to inoculate the whole of their populations.

Patent:

- A patent is an **exclusive right to make, use and sell an inventive product or process, and is conferred by the state**.
- Patent laws are usually **justified on three distinct grounds**:
 - On the idea that **people have something of a natural and moral right to claim control over their inventions**.
 - On the utilitarian premise that **exclusive licenses promote invention and therefore benefit society as a whole**.
 - On the belief that **individuals must be allowed to benefit from the fruits of their labour and merit**, that when a person toils to produce an object, the toil and the object become inseparable.

Issue:

- Each of these justifications for patents has long been a **matter of contest**, especially in the application of claims of monopoly over pharmaceutical drugs and technologies.
- In India, the question of connecting the idea of promoting invention and offering exclusive rights over medicines on the one hand with the state's obligation of ensuring that every person has equal access to basic healthcare on the other has been a source of constant tension.
- The colonial-era laws that the country inherited expressly allowed for pharmaceutical patents.
- But, in 1959, a committee chaired by Justice N. Rajagopala Ayyangar objected to this on ethical grounds.
 - The Parliament put this into law through the Patents Act, 1970, that monopolies over pharmaceutical drugs be altogether removed, with protections offered only over claims to processes. This change in rule allowed generic manufacturers in India to grow.
 - As a result, life-saving drugs were made available to people at more affordable prices.

With the advent of the TRIPS agreement in 1995, and compelling signatories to introduce intellectual property laws, drugs that reduced AIDS deaths in developed nations were placed out of reach for the rest of the world.

Way Forward:

- **Two common arguments are made in response to objections against the prevailing patent regime.** However, they have been debunked time and again.
 - Unless corporations are rewarded for their inventions, they would be unable to recoup amounts invested by them in research and development.
 - Without the right to monopolise production there will be no incentive to innovate. Both of these claims have been refuted time and again.

The claim that the removal of **patents would somehow invade a company's ability to recover costs is untrue.**

- Big pharma has never been forthright about the quantum of monies directed by it into research and development.
- Its research is usually driven towards diseases that afflict people in the developed world.

The idea that patents are the only means available to promote innovation has become something of a dogma. Proposals have been made for a **prize fund for medical research in place of patents.**

There is a need for **global collective action.** If nation-states are to act as a force of good, they must each attend to the **demands of global justice.**

Rules granting monopolies that place the right to access basic healthcare in a position of constant peril must end.

Conclusion:

- Reports suggest that for **most poor countries it would take until at least 2024 before widespread vaccination is achieved**. Quick and efficient **vaccination is the surest route to achieving global herd immunity** against the virus.
- The waiver will allow countries to **facilitate a free exchange of know-how and technology** surrounding the production of vaccines.

7. Green Initiatives: Saudi Arabia

Why in News

Recently, Saudi Arabia launched **Saudi Green Initiative** and the **Middle East Green Initiative** to combat the threat of **climate change**.

Key Points

- **Background and G20 Summit:**
 - One of the main pillars of the Saudi **G20** presidency was to **safeguard the planet**.
 - In 2020, **G20 introduced initiatives** like establishing a **Global Coral Reef Research and Development Accelerator Platform** and the **Circular Carbon Economy (CCE) Platform**.
 - Saudi Arabia reiterated that it is committed to lead regional efforts to address climate change and has been making steady progress in this direction.
 - Saudi Arabia established the **Environmental Special Forces in 2019**.
- **Saudi Green Initiative:**
 - **Aim:**
 - To **raise the vegetation cover, reduce carbon emissions, combat pollution and land degradation, and preserve marine life**.
 - **Features:**

- **10 billion trees** will be planted in the Kingdom.
- To **reduce carbon emissions by more than 4% of global contributions**, through a **renewable energy programme** that will generate 50% of Saudi's energy from renewables by 2030.
- Saudi Arabia is working towards **raising the percentage of its protected areas to more than 30% of its total land area**, exceeding the global target of 17%.
- **Middle East Green Initiative :**
 - **Aim:**
 - To preserve marine and coastal environments, increase the proportion of natural reserves and protected land, **improve the regulation of oil production, accelerate the transition to clean energy and boost the amount of energy generated by renewables.**
 - **Features:**
 - Saudi Arabia will work with the **Gulf Cooperation Council** countries and regional partners to plant an additional 40 billion trees in the West Asian region.
 - It represents 5% of the global target of planting one trillion trees and reducing 2.5% of global carbon levels.
 - Saudi Arabia will **convene an annual summit called the Middle East Green Initiative** which will host leaders from the government, scientists and environmentalists to discuss the details of implementation.
 - In partnership with participating countries, **innovative methods will be researched** to irrigate from treated water, cloud seeding and other purpose-driven solutions such as planting native trees which requires support for three years to grow and will then be able to survive on their own with natural irrigation.
 - **Current Support:**
 - Saudi Arabia has been sharing its expertise and know-how with its neighbouring countries to **reduce carbon emissions resulting from hydrocarbon production in the region by 60% and globally by 10%.**
 - Saudi Arabia currently operates the **largest carbon capture and utilisation plant in the world**, it also operates one of the **region's most**

advanced CO₂-enhanced oil recovery plants that captures and stores 8,00,000 tonnes of CO₂ annually.

- **Appreciating Indian Efforts:**
 - Saudi Arabia also appreciated India's remarkable commitments to tackle climate change as India is on track to achieve its **Paris Agreement** targets.
 - India's **renewable energy capacity is the fourth largest in the world**. India has an ambitious target of achieving **450 gigawatts of renewable energy capacity by 2030**.
- **Related Indian Initiatives:**
 - **National Clean Air Programme (NCAP)**
 - **Bharat Stage-VI (BS-VI) emission norms**
 - **UJALA scheme**
 - **National Action Plan on Climate Change (NAPCC)**
 - **International Solar Alliance**
 - **Coalition for Disaster Resilience Infrastructure**

Way Forward

- Saudi Arabia hopes that the launch of the two Initiatives marks the **beginning of a green era** and that these **initiatives provide momentum to other countries to unify their efforts to save our planet**.
- Economic prosperity cannot be achieved at the cost of the environment. It is critical for us, as an industry, to shift from 'pollute-first, clean-up later' attitude and **commit to preserving our diminishing natural resources**.
- The intent and aspiration to align economic efforts with the environment should not be restricted to the government. **Collaboration between the industry, government and regulatory bodies will help in evaluating decisions on economic viability and environmental benefits**.

8. Joint Logistics Node

Why in News

The Chief of Defence Staff **General Bipin Rawat** has operationalised the **third Joint Logistics Node (JLN) in Mumbai**.

- **Other operationalised JLN**s are in **Guwahati and Port Blair**.

Key Points

▪ Significance of Joint Logistics Nodes:

- These JLN**s will provide integrated logistics cover to the Armed Forces** for their small arms ammunition, rations, fuel, general stores, civil hired transport, aviation clothing, spares and also engineering support in an effort to synergise their operational efforts.
- It would **accrue advantages** in terms of **saving of manpower, economical utilisation of resources**, besides **financial savings**.
- This is the **precursor to the joint logistics command** which is being planned and is **imperative for the optimisation of the combat potential of integrated theatres**.
- One of the means to achieve jointness is through the **setting up of integrated theatre commands** for the best use of military resources to fight future battles.

▪ Integrated Theatre Command:

- An integrated theatre command **envisages a unified command of the three Services**, under a single commander, for geographical theatres (areas) that are of strategic and security concern.
- The commander of such a force **will be able to bear all resources at his disposal** – from the Army, the Indian Air Force, and the Navy – with seamless efficacy.
- The integrated theatre commander **will not be answerable to individual Services**.
- Integration and jointness of the three forces **will avoid duplication of resources**. The resources available under each service will be available to other services too.
- The services will get to know one another better, **strengthening cohesion in the defence establishment**.
- The **Shekatkar committee** has **recommended the creation of 3 integrated theatre commands** – northern for the China border, western for the Pakistan border, and southern for the maritime role.

▪ Present Tri-Services Command:

- The **Andaman and Nicobar Command (ANC)** is a theatre command, which is headed by the chiefs of the three services in rotation.
 - It was **created in 2001** to safeguard India's strategic interests in Southeast Asia and the Strait of Malacca by increasing rapid deployment of military assets in the islands.
- The **Strategic Forces Command** was **established in 2006** and is a functional tri-services command. It looks after the delivery and operational control of the country's nuclear assets.

Chief of Defence Staff

▪ **About:**

- He is in the **rank of a four-star General** with salary and benefits equivalent to a Service Chief.
- The **retirement age for the CDS is 65 years**, which is three years more than the retirement age of the three service chiefs.
- The creation of a CDS was **suggested by the Kargil Review Committee (KRC) in February 2000**.

▪ **Role of CDS:** Fundamentally, the CDS will perform two roles:

- **First Role:** The CDS will act as the **principal military adviser to the defence minister** on tri-Services issues.
- **Second Role:** The CDS will lead the **Department of Military Affairs (DoMA)** dealing with the three services.

GS 2 : Polity, Governance, International Relations

1. Understanding the Ct value in a Covid-19 test

What is Ct value

- Short for **cycle threshold**, Ct is a value that emerges during RT-PCR tests.
- In an RT-PCR test, RNA is extracted from the swab collected from the patient.
- It is then converted into DNA, which is **then amplified**.
- Amplification refers to the **process of creating multiple copies of the genetic material** – in this case, DNA.
- Amplification takes place through a **series of cycles** – one copy becomes two, two becomes four, and so on.
- Put simply, the Ct value refers to the number of cycles after which the virus can be detected.
- **The lower the Ct value, the higher the viral load** – because the virus has been spotted after fewer cycles.

Why Ct value is important

- According to the ICMR, a patient is considered Covid-positive if the Ct value is below 35.
- If the benchmark were to be lowered to 24 – the value mentioned in Maharashtra's letter – it would mean that Ct values in the range 25-34 would not be considered positive.
- A benchmark of 35, therefore, means that more patients would be considered positive than we would get if the benchmark were 24.
- The ICMR has said **lowering Ct threshold parameter may lead to missing several infectious persons**.

Does Ct score indicate the severity of disease

- A small study published in the Indian Journal of Medical Microbiology in January this year found that there was **no correlation between Ct values and severity of disease** or mortality in patients with Covid-19 disease.
- It found that the **time since the onset of symptoms** has a stronger relationship with Ct values as compared to the severity of the disease.
- The Ct value tells us about the viral load in the throat and **not in the lungs**.
- The Ct value does not correlate with severity – **only with infectivity**.

2. Need for diversity and propriety in judiciary

Improving representation of women

- Presently, the Supreme Court is left with only one woman judge, who is also going to retire next year, after which, the SC will be **left without a woman judge**.
- The collegium failed to take timely steps to elevate more women judges in the SC.
- In the 71 years of history of the SC, there have been **only eight women judges** – the first was Justice Fathima Beevi, who was elevated to the bench after a long gap of 39 years from the date of establishment of the SC.
- In the submissions filed by the AG on the issue states that improving the representation of women in the judiciary could go a long way towards **attaining a more balanced and empathetic approach in cases involving sexual violence**.
- The AG also brought up the fact that there has never been a woman Chief Justice of India (CJI).

Women representation in developed countries

- The situation is not any different in developed countries such as the US, UK, Ireland, France and China.
- According to the data collected by Smashboard, a New Delhi and Paris-based NGO, not only has no woman ever been appointed as the CJI, the representation of women across different courts and judicial bodies is also abysmally low.

Way forward

- In the last few meetings of the collegium, there has been some talk of promoting women to the apex court.
- In this regard, if Justice B V Nagaratha of the Karnataka High Court is elevated to the Supreme Court, she could become the first woman CJI in February 2027.
- But her elevation will lead to the supersession of 32 senior judges.
- Supersession itself is perceived as a threat to an independent judiciary
- Seniority combined with merit is the sacrosanct criteria for promotion in the judiciary.
- New CJI should secure the trust of members of his collegium to fill the backlog of 411 vacancies across high courts and six vacancies in the SC.

Conclusion

A greater number of women in the Supreme Court would eventually lead to a woman CJI. This would be a gratifying change, which may mark the beginning of a new era of judicial appointments.

3. UK's Indo-Pacific Tilt

Why in News

Recently, the British Government said that the **UK Carrier Strike Group's** "globe-spanning maiden deployment will feature **visits to India, Japan, Republic of Korea and Singapore**".

- Earlier, the **European Union had announced** that it will reinforce its strategic focus, presence and actions in the Indo-Pacific with the aim of contributing to the stability, security, prosperity and sustainable development of the region.

Key Points

- **About the UK Carrier Strike Group (CSG):**
 - **CSG:**
 - Carrier strike groups are **often formed for a specific mission rather than by platform.**
 - The carrier is typically **part of a larger formation**, usually including destroyers, frigates and submarines, as well as logistical-support ships.
 - The carrier **provides the primary offensive air power**, while the other vessels provide the wider defence and support role and can also participate offensively, such as with the launch of missile systems.
 - **UK CSG:**
 - It will be **led by the aircraft carrier HMS Queen Elizabeth.**
 - It will be a **global deployment**, from the **North Atlantic to the Indo-Pacific.**
 - The **"28-week deployment"** will span **26,000 nautical miles**, and CSG will **undertake over 70 engagements in over 40 nations.**

- As part of the UK's tilt towards the Indo-Pacific region, the CSG will conduct engagements with Singapore, the Republic of Korea, Japan and India.
- **UK CSG Deployment in Indo-Pacific:**
 - It will bolster already deep defence partnerships in the region, where the UK is committed to a more enduring regional defence and security presence.
 - Engagement in Singapore, the Republic of Korea, Japan and India will provide the opportunity for strengthening the UK's security relationships, tightening political ties and supporting UK exports and International Trade agenda.
- **India-UK Ties:**
 - **Political Cooperation:**
 - The bilateral relationship was upgraded to a strategic partnership in 2004.
 - The UK has reaffirmed its support for India's permanent membership of the UN Security Council.
 - **Scope in Economic Cooperation:**
 - India's skilled labour, technological assistance and the vibrant market will open a lot of avenues for Britain which has recently parted ways with the European Union.
 - Along with the world, India is now steering towards 5G. The UK will need India's help to marginalize China in the telecom market.
 - The UK is one of the largest investors in India, among the G20 countries.
 - **Defence Exercises:**
 - Air Force Exercise 'Indradhanush'.
 - Navy Exercise **Konkan**.
 - Army Exercise: **Ajeya Warrior**
- **Indo-Pacific: The New Point of Convergence:**
 - With the UK expanding its footprint in the Indo-Pacific and India working toward gaining prominence as the net security provider in the region, both countries' aspirations and future seem to be intertwined.

- An **area of focus** up ahead should be **to enhance military-to-military interactions**.
- While there exist service-specific joint training exercises, their pace has not matched with India's exercises with the US.
- The **lack of foundational agreements** may be acting as a limiting factor as well. While an MoU on joint training is under development, a military logistics agreement is expected to be signed soon.
- This will give India and the UK reciprocal access to each other's bases and formalize the procedures for receiving and paying for logistic support, such as servicing and refueling.
- The **UK, with its bases in Kenya, Brunei, Bahrain, Oman, Singapore, and the British Indian Ocean Territory**, is by no means new to the region. Having such an infrastructure already in place will not only aid its ambitions in the region but **also be valuable to its partners**.
- For **India, access to these bases will augment its reach further** into the Indian Ocean.
- **Working with other like-minded countries**, such as Japan and Australia, there is great scope for close cooperation in areas of maritime domain awareness and intelligence sharing by leveraging the strength of each other's assets.
- In this regard, **Japan's initiative** to enhance defence intelligence sharing with India, Australia, and the UK is a significant step.

Way Forward

- Moving forward, the India-UK defence relationship **will no longer be limited to being one of a buyer-seller**. It will not stop at defence production either.
- Through close maritime cooperation and a joint approach toward maintaining regional security and stability in the Indo-Pacific, the two countries have the potential to forge a truly comprehensive strategic partnership in action.

GS 3 :Economy, Science and Technology,Environment

4. Advanced Chaff Technology

Why in News

The Defence Research and Development Organisation (DRDO) has developed an Advanced Chaff Technology to safeguard the naval ships against enemy missile attack.

- It is another step towards **Atmanirbhar Bharat**.

Key Points

- **About the Technology:**
 - Chaff is an **electronic countermeasure technology** used by militaries worldwide **to protect naval ships** or other sensitive targets **from radar and radio frequency (RF)** guiding mechanisms **of the enemy missile**.
 - The chaff rockets deployed in the air **reflect as multiple targets for the missile guidance systems** and deflecting adversary missiles, thus protecting their own assets.
 - DRDO has **indigenously developed** three variants of the critical technology namely **Short Range Chaff Rocket (SRCR), Medium Range Chaff Rocket (MRCR) and Long Range Chaff Rocket (LRCR)**.
- **Difference between Chaff and Flares:**
 - Both **chaff and flares are defensive countermeasures** deployed by military aircraft. The purpose is **to confuse radar-guided or infrared-guided anti aircraft missiles** fired so that they could be diverted.
 - **Chaff is composed of many small aluminium or zinc coated fibres** stored on-board the aircraft in tubes. In case the aircraft feels threatened by any radar tracking missiles, chaff is ejected into the turbulent wake of air behind the plane.
 - **Flares** on being fired **provide an alternate strong IR (Infrared) source** to heat-seeking anti-air missiles so that they are lured away from the aircraft.

Defence Research and Development Organisation

- DRDO works under the **administrative control of the Ministry of Defence**.

- It is working to establish a world class science and technology base for India and provides Defence Services decisive edge by equipping them with internationally competitive systems and solutions.
- It was **established in 1958** after combining Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development & Production (DTDP) with the Defence Science Organisation (DSO).
- It is responsible for carrying out **Integrated Guided Missile Development Programme (IGMDP)**.

Some Recent Tests by DRDO

- **Hypersonic Technology Demonstrator Vehicle (HSTDV)**
- **Abhyas High-speed Expendable Aerial Target**
- **Laser-Guided Anti Tank Guided Missile**
- **BrahMos Missile**
- **Supersonic Missile Assisted Release of Torpedo (SMART) system**
- **Rudram**

5. Ct Value: Covid-19 Test

Why in News

The **ICMR (Indian Council of medical Research)** has decided a single Ct value cut-off for determining whether a patient is positive for **Covid-19**.

- Ct is a value that emerges during **RT-PCR tests**. All patients with a **Ct value** less than **35** may be considered **as positive** while those with a **Ct value** above **35** may be considered **as negative**.

Key Points

- **RT-PCR Tests:**
 - In an **RT-PCR (Reverse Transcription Polymerase Chain Reaction)** test, **RNA (Ribonucleic acid)** is extracted from the swab collected from the patient. It is **then converted into DNA (Deoxyribonucleic acid)**, which is **then amplified**.
 - **Amplification** refers to the **process of creating multiple copies of the genetic material** - in this case, DNA.
 - This **improves the ability of the test to detect the presence of the virus**.

- Amplification takes place through a series of cycles – one copy becomes two, two becomes four, and so on – and it is **after multiple cycles that a detectable amount of virus is produced.**
- **Ct Value:**
 - Ct is short for ‘Cycle Threshold’.
 - The Ct value refers to the number of cycles after which the virus can be detected.
 - If a **higher number** of cycles is required, it implies that the **virus went undetected** when the number of cycles was lower.
 - The **lower the Ct value**, the **higher the viral load**-because the virus has been spotted after fewer cycles.
 - It has been found that the **time since the onset of symptoms has a stronger relationship with Ct values as compared to the severity of the disease.**
- **Viral Load:**
 - It refers to the amount of genetic material, commonly RNA, of a virus present in an infected person’s blood.
 - This is expressed as the total number of viral particles present in each millilitre of blood.
 - A **higher viral load** in the blood means that **the virus is replicating and the infection is progressing.**
 - An infected person with a high viral load is more likely to shed more virus particles, in the process known as “viral shedding”.

6. Oxygen Crisis: Covid-19

Why in News

The **Liquid Medical Oxygen (LMO)** crisis during the **second wave of Covid surge** has been precipitated by a shortage of tankers and the daunting logistics of transportation from distant locations.

Key Points

- **Liquid Medical Oxygen:**
 - It is high purity oxygen suitable for use in the human body. So, it is used for medical treatments.

- This oxygen provides a basis for virtually all modern anaesthetic techniques, restores tissue oxygen tension by increasing the oxygen availability, aids cardiovascular stability, etc.
- **The World Health Organisation** includes this on their **List of Essential Medicines**.
- According to the **Drug Prices Control Order, 2013**, LMO is placed under the **National List of Essential Medicines (NLEM)**.
- **LMO Production in India:**
 - India has a **daily production capacity** of at least **7,100 Metric Tonnes (MT)** of oxygen, including for industrial use.
 - Due to the crisis, the production has been increased to **8,922 MT**. And approximately **daily sale is 7,017 MT**.
 - The domestic production is expected to **cross 9,250 MT** per day by the end of April 2021.
 - Therefore, **India appears to be producing sufficient oxygen** to meet the current need.
- **Reasons for the Crisis:**
 - **Distance of Production Plants:**
 - Most of the LMO plants are located in the east, leading to long transportation hauls and a turnaround time of at least 6-7 days for each tanker. Add to this the problem of states holding up tankers on the way.
 - **Limited Tankers:**
 - At present, India has 1,224 LMO tankers with a cumulative capacity of 16,732 MT of LMO. This is grossly inadequate because at any given point, there are only 200 tankers in transit to meet a demand of 3,500-4,000 MT.
 - **Companies not Buying Cryogenic Tankers:**
 - Cryogenic tankers cost around Rs. 50 lakh each. Companies are not buying these tankers because once this wave is over, that investment will turn into losses.

- **Cryogenic Tankers:** These are tankers which store medical oxygen at -180 degrees C, have double-skin vacuum-insulated containers, including an inner vessel made of stainless steel.
- **Leakage and Irrational Use:**
 - In the past, the Health Ministry repeatedly demanded hospitals to reduce **wastage and unnecessary oxygen use in Hospitals**. Industrial experts also raised **concerns over possible leakages in hospital pipelines that supply oxygen**.
 - **Black marketing of oxygen cylinders** is another issue.
- **Government Initiatives:**
 - **Oxygen Express:**
 - Trains to transport LMO and oxygen cylinders across the country have been started to fight the ongoing crisis.
 - **Disaster Management Act 2005:**
 - The Ministry of Home Affairs **invoked Disaster Management Act, 2005 (DM Act)** and ordered **free inter-state movement of oxygen carrying vehicles**.
 - **Restarting Plants:**
 - The government is restarting many closed plants to increase the supply of LMO, **for example**, Sterlite plant in Tamil Nadu will be **reopened for 4 months to provide oxygen supply**.
 - **Use of Air Force:**
 - To speed up the transportation, **Indian Air Force (IAF)** is airlifting empty oxygen tankers and taking them to industrial units that have switched to producing medical grade oxygen.
 - **Oxygen Enrichment Unit (OEU):**
 - It is developed by scientists of **Council of Scientific and Industrial Research-National Chemical Laboratory (CSIR-NCL)**, and will **help reduce the requirement of ventilators and oxygen cylinders** in homecare, villages and remote places.

- Oxygen enrichment units have special significance in view of the **Covid-19 pandemic**. **Patient recovery can be faster with supplemental oxygen in early stages.**



Prelims Practice Questions

1. Which of these countries border the Caspian Sea?

1. Iran
2. Russia
3. Armenia
4. Azerbaijan
5. Turkmenistan

Options:

- a. 1, 2, 3 and 5 only
- b. 2, 3 and 5 only
- c. 1, 2, 4 and 5 only
- d. 1, 2, 3, 4, 5 and 6

Answer: c

Explanation

Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan border the Caspian Sea.

2. SAMVEDNA, sometimes seen in the news recently, is associated with?

- a. Hospital on Wheels Services
- b. Election Commission of India
- c. Tele counseling service for Children
- d. Drug De-Addiction and Rehabilitation

Answer : c

Explanation

- The apex child rights body **National Commission for Protection of Child Rights (NCPCR)** has recently launched a toll-free tele-counselling helpline number 1800-121-2830 for children affected during COVID-19 for providing counselling and psycho-social support.

Sensitizing Action on Mental Health Vulnerability through Emotional Development and Necessary Acceptance (SAMVEDNA)

- It is a toll free Tele counseling number that will be able to address the stress, anxiety, fear and other issues among children.
- When a child dials the toll-free number, they get to speak to a professional counsellor in a safe environment.
- The tele-counseling support will cater to children all over India in various regional languages also.
- Counsellors have been specially trained by the expert team of NIMHANS to address the needs of children in these difficult times.

3) Which country becomes the first major nation to pass a law to phase-out coal as an energy source?

- a. Norway
- b. Greenland
- c. Germany
- d. Japan

Answer : c

Explanation

- At the International Energy Agency's Clean Energy Transition Summit held recently, UN Secretary-General said coal and fossil fuels have no place in COVID-19 recovery plans.
- Germany becomes first major nation to pass a law to phase out coal and nuclear as an energy source by 2038.
- The country earlier committed to phase-out nuclear energy by 2022.
- The Intergovernmental Panel on Climate Change (IPCC) had stated that staying within 1.5°C would require all coal-powered electricity to zero out by 2050.

4. Which of the following Indian languages are supported by Bharati script?

1. Tamil
2. Telugu
3. Gujarati
4. Bengali

Select the correct answer using the code given below:

A 1, 2 and 4 only

- B 1, 2 and 3 only
- C 2, 3 and 4 only
- D 1, 2, 3 and 4

Answer :D

Explanation

- **Bharati script** is designed to be a common script that can express all the major Indian languages.
- Bharati script has been developed at IIT Madras.
- Features:
 - Bharati is a simple and unified script which can be used to write most major Indian languages.
 - It is designed using simplest shapes, often borrowing simple characters from various Indian languages/ scripts and English.
 - Scripts supported are: Hindi/Marathi (Devanagari), Tamil, Telugu, Gujarati, Punjabi (Gurmukhi), Bengali, Oriya, Kannada and Malayalam. **Hence, option D is correct.**

5. Which of the following is not correct regarding invasive species?

- A An invasive species is not indigenous or native to a particular area.
- B They are capable of causing extinctions of native plants and animals.
- C They increase biodiversity and provide stability to the ecosystem.
- D They can be introduced to an area by ship ballast water.

Answer : C

Explanation

- An invasive species is an organism that is **not indigenous, or native**, to a particular area and causes harm.
- They are **capable of causing extinctions of native plants and animals**.
- They **reduce (not increase) biodiversity**, competing with native organisms for limited resources, altering habitats and negatively affects the ecosystem stability. **Hence, option C is correct.**
- They can be introduced to an **area by ship ballast water**, accidental release, and most often, by people.
- Recently, a special drive to **uproot the invasive Lantana bushes in the Sajjangarh Wildlife Sanctuary** in Rajasthan's Udaipur district has been carried out along with the plantation of native species on the cleared patches of land.

6. Consider the following statements:

1. Indus Valley Civilization (IVC) is known for its urban civic planning.
2. There is no evidence of maritime trade during IVC.

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

Answer :A

Explanation

- In the 1920s, the **Archaeological Survey of India (ASI)** carried out excavations in the Indus valley wherein the ruins of the two old cities, viz. Mohenjo-Daro and Harappa were unearthed.
 - Both are major sites of IVC and are among the **earliest and finest examples of urban civic planning. Hence, statement 1 is correct.**
 - The planned network of roads, houses and drainage systems indicate the planning and engineering skills that developed during those times.
- It was a trade based civilization which had overseas trade links with Mesopotamia (region of Western Asia situated within the Tigris–Euphrates river system) attested by the discovery of Harappan seals there and Mesopotamian carnelian beads here.
 - There was an **extensive maritime trade network** operating between the Harappan and Mesopotamian civilizations.
 - The remains of the **first manmade port and dockyard** is found from Lothal.
 - **Hence, statement 2 is not correct.**

Mains Practice Questions

1Q. India being a responsible regional power, should invest in regional frameworks for disaster management. Discuss the statement in light of the increasing vulnerability of the South Asia region. (250 words)

Approach

- Introduce by briefly writing India's interest in creating a regional framework for disaster management in the region.
- Discuss the vulnerability of the South Asia region to various disasters.
- Suggest some solution as a way forward.
- Conclude suitably on a positive note.

2Q. A welfare policy is as good as its inclusive and sensitive implementation. Explain. (250 words)

Approach

- Briefly highlight what welfare policies and state mean.
- Highlight how inclusiveness and sensitivity in implementation can enhance welfare policies and status of a nation.
- Suggest measures to overcome some of the challenges faced in ensuring sensitive and inclusive policy implementation.