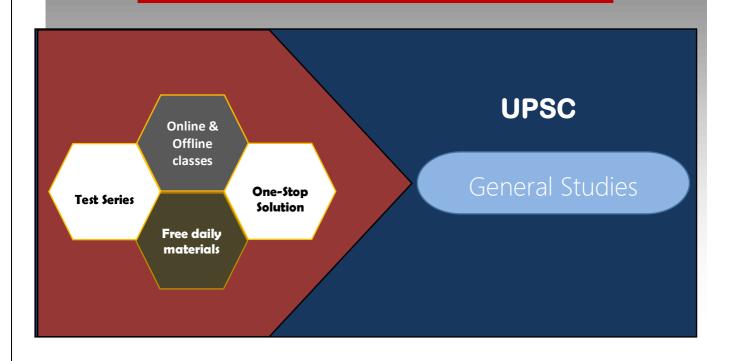# VISHNU
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GS 2 : Polity, Governance, International Relations

1. G7 Trade Ministers' Digital Trade Principles

The Group of Seven wealthy nations agreed on a joint set of principles to govern cross-border data use and digital trade.

Digital Trade Principles

- **Open digital markets:** Digital and telecommunications markets should be competitive, transparent, fair, and accessible to international trade and investment.
- **Cross-border data flows:** To harness the opportunities of the digital economy and support the trade of goods and services, data should be able to flow freely across borders with trust.
- **Safeguards for workers, consumers, and businesses:** Labour protections must be in place for workers who are directly engaged in or support digital trade, providing decent conditions of work.
- **Digital trading systems:** To cut red tape and enable more businesses to trade, governments and industries should drive forward the digitization of trade-related documents.
- **Fair and inclusive global governance:** Common rules for digital trade should be agreed and upheld at the World Trade Organization.

About Group of Seven

- The G-7 or 'Group of Seven' includes C**anada, France, Germany, Italy, Japan, the United Kingdom, and the United States**.
- It is an **intergovernmental organization** that was **formed in 1975** by the top economies of the time as an informal forum to discuss pressing world issues.
- Initially, it was formed as an effort by the US and its allies to discuss economic issues.
- The G-7 forum now discusses several challenges such as oil prices and many pressing issues such as financial crises, terrorism, arms control, and drug trafficking.
- It **does not have a formal constitution or a fixed headquarters**. The decisions taken by leaders during annual summits are non-binding.
- Canada joined the group in 1976, and the European Union began attending in 1977.

Evolution of the G-7

- When it started in **1975** — with six members, Canada joining a year later — it **represented about 70% of the world economy.**
- And it was a cosy club for tackling issues such as the response **to oil shocks.**
- Now it accounts for about **40% of global gdp.**
- Since the global financial crisis of 2007-09 it has **sometimes** been overshadowed by the **broader g20.**
- The G-7 became **the G-8 in 1997** when Russia was invited to join.
- In 2014, Russia was debarred after it **took over Crimea.**

2. Liaison Officer (LO) at the Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR)

In News :

The Netherlands has said that it is interested in posting **a Liaison Officer (LO)** at the Navy's **Information Fusion Centre for Indian Ocean Region (IFC-IOR)** for Maritime Domain Awareness and information sharing.

- The IFC-IOR was **set up in 2018 to coordinate with regional countries on maritime issues and act as a regional repository of maritime data.**
- It presently has linkages with more than 20 partner countries and multi-national agencies across the globe.
- It is **located in Gurugram, India.**

Roles and functions of a liaison officer:

The liaison officer will be based full-time at the centre, working directly with the Indian armed forces and fellow liaison officers from partner nations to enhance maritime domain awareness in the region.

3. China-Pakistan Economic Corridor (CPEC)

In News :

The chief of **the China-Pakistan Economic Corridor (CPEC)** Authority has accused the U.S. of sabotaging the multi-billion dollar project, the economic lifeline of Pakistan.

Background:

Pakistan is the seventh largest recipient of Chinese overseas development financing with 71 projects worth $27.3 billion under way as part of the CPEC.

CPEC

Launched in 2015, the CPEC is the flagship project of the multi-billion-dollar **Belt and Road Initiative (BRI),** a pet project of Chinese President Xi Jinping, aimed at enhancing Beijing's influence around the world through China-funded infrastructure projects.

- The 3,000 km-long China–Pakistan Economic Corridor (CPEC) **consists of highways, railways, and pipelines.**
- CPEC eventually aims at **linking the city of Gwadar in South Western Pakistan to China's North Western region Xinjiang** through a vast network of highways and railways.
- The proposed project will be financed by heavily-subsidised loans, that will be disbursed to the Government of Pakistan by Chinese banks.

But, why is India concerned?

It **passes through PoK.**

- CPEC rests on a Chinese plan to secure and shorten its supply lines through Gwadar with an enhanced presence in the Indian Ocean. Hence, it is widely believed that **upon CPEC's fruition, an extensive Chinese presence will undermine India's influence in the Indian Ocean.**
- It is also being contended that if CPEC were to successfully transform the Pakistan economy that could be **a "red rag" for India which will remain at the receiving end of a wealthier and stronger Pakistan.**
- Besides, India shares a great deal of **trust deficit** with China and Pakistan and has a history of conflict with both. As a result, even though suggestions to re-approach the project pragmatically have been made, no advocate has overruled the principle strands of contention that continue to mar India's equations with China and Pakistan.

GS 3 : Economy, Science and Technology,Environment

4. Prakritik Kheti Khushhal Yojana

Women farmers in the hill State of Himachal Pradesh are gradually turning to non-chemical, low cost "natural farming", under the Prakritik Kheti Khushhal Yojana (PK3Y).

Prakritik Kheti Khushhal Yojana

- Launched in 2018, the State's PK3Y is promoting the climate resilient Subhash Palekar Natural Farming (SPNF), also called 'Zero Budget Natural Farming'.
- Over 1.5 lakh farmers have been trained in natural farming in the State so far, with substantial numbers of women participants.

About Zero Budget Natural Farming (ZBNF)?

- ZBNF is a set of farming methods, and also a grassroots peasant movement, which has spread to various states in India.
- **Subhash Palekar** perfected it during the 1990s at his farm in **Amravati district in Maharashtra**'s drought-prone Vidarbha region.
- According to the "zero budget" concept, farmers won't have to spend any money on fertilisers and other agricultural inputs.
- Over 98% of the nutrients that crops require — carbon dioxide, nitrogen, water, solar energy — are already present in nature.
- The remaining 1.5-2% are taken from the soil, after microorganisms convert them from "non-

Four Wheels of ZBNF

The "four wheels" of ZBNF are 'Jiwamrita', 'Bijamrita', 'Mulching' and 'Waaphasa'.

- **Jiwamrita** is a fermented mixture of cow dung and urine (of desi breeds), jaggery, pulses flour, water and soil from the farm bund.
- This isn't a fertiliser, but just a source of some 500 crore micro-organisms that can convert all the necessary "non-available" nutrients into "available" form.
- **Bijamrita** is a mix of desi cow dung and urine, water, bund soil and lime that is used as a seed treatment solution prior to sowing.
- **Mulching**, or covering the plants with a layer of dried straw or fallen leaves, is meant to conserve soil moisture and keep the temperature around the roots at 25-32 degrees Celsius, which allows the microorganisms to do their job.

- **Waaphasa**, or providing water to maintain the required moisture-air balance, also achieves the same objective.

Astra's of ZBNF against pest attacks

- ZBNF advocates the use of special '**Agniastra**', '**Bramhastra**' and '**Neemastra**' concoctions.
- They are **based on cow urine and dung, plus pulp from leaves** of neem, white datura, papaya, guava and pomegranates — for controlling pest and disease attacks.

Is it organic farming?

- ZBNF uses **farmyard manure or vermicompost**.

However, not all farmers are convinced about ZBNF. Why?

- **Cost of labour:** The cost of labour for collection of dung and urine, apart from the other inputs used in preparation of Jiwamrita, Neemastra or Bramhastra is quit higher.
- **Bovine cost:** Keeping cows is also a cost that has to be accounted for. Farmers cannot afford to keep desi cows that yield very little milk.
- **Vulnerability to pest attacks:** ZBNF is scarcely practiced. The crop grown would be vulnerable to attacks by insects and pests have already become pest-immune.

5. Hybrid Immunity

A study has shown that a combination of natural infection with a single dose of vaccine provides greater immunity than either natural infection without vaccination or full vaccination in individuals.

What is the new study?

- People without prior infection but fully vaccinated with the Pfizer or AstraZeneca vaccine showed a decline in neutralising antibodies over a period of three to seven months.
- But the decline was much less in vaccinated people with prior infection.
- People with hybrid immunity had a higher and more durable neutralising antibody response.
- The hybrid immunity offers stronger protection than just infection or full vaccination alone.

Hybrid Immunity

- It is natural immunity from an infection combined with the immunity provided by the vaccine.
- The immunological advantage from hybrid immunity arises mostly from memory B cells.

What are memory B cells?

- In immunology, a memory B cell (MBC) is a type of B lymphocyte that forms part of the adaptive immune system.
- B lymphocytes are the cells of the immune system that make antibodies to invade pathogens like viruses.
- They form memory cells that remember the same pathogen for faster antibody production in future infections.

How do they assist hybrid immunity?

- While the bulk of antibodies after infection or vaccination decline after a short while, the memory B cells get triggered on subsequent infection or vaccination.
- The memory B cells triggered by infection and those triggered by vaccination have different responses to viruses.
- Infection and vaccination expose the spike protein to the immune system in vastly different ways.
- After full vaccination, antibodies produced by natural infection continued to grow in potency and their breadth against variants for a year after infection.
- Unlike after vaccination, the memory B cells formed after natural infection are more likely to make antibodies that block immune-evading variants.

6. International Snow Leopard Day- October 23

Background:

The day came into being with the adoption of **the Bishkek Declaration** by 12 countries on the conservation of snow leopards.

Scientific name: Panthera uncia.

Habitat: Snow leopards live in the mountains of Central Asia.

Numbers: There are only between 3,920 and 6,390 snow leopards left in the wild.

Range extends through twelve countries: Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan.

Conservation Status: Snow leopards were considered endangered species until 2017 but **the status was changed to vulnerable later in the year.**

Conservation efforts- National level:

As per reports, **India is home to about 450-500 snow leopards** which can be spotted in the upper Himalayan regions of the country.

1. India has been conserving snow leopards and their habitats through **the Project Snow Leopard (PSL)**.
2. India has also been part of **the Global Snow Leopard and Ecosystem Protection (GSLEP) Programme** since 2013.
3. For conservation, **India has identified three large landscapes, namely,** Hemis-Spiti across Ladakh and Himachal Pradesh; Nanda Devi – Gangotri in Uttarakhand; and Khangchendzonga – Tawang across Sikkim and Arunachal Pradesh.
4. Snow Leopard is in **the list of 22 critically endangered species for the recovery programme** of the Ministry of Environment Forest & Climate Change.
5. **SECURE Himalaya: Global Environment Facility (GEF)-United Nations Development Programme (UNDP)** funded the project on conservation of high-altitude biodiversity and reducing the dependency of local communities on the natural ecosystem. This project is now operational in four snow leopard range states, namely, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, and Sikkim.
6. Community volunteer programme **"HimalSanrakshak"** to protect snow leopards.

Conservation efforts- International level:

- In 2013, **the Bishkek Declaration** set a goal of protecting at least 20 snow leopard landscapes with viable snow leopard populations by 2020, and led to the formation of the Global Snow Leopard and Ecosystem Protection Program (GSLEP). Since then, **October 23 is commemorated each year as International Snow Leopard Day.**
- **The Global Snow Leopard and Ecosystem Protection Programme (GSLEP)** was also launched on the same day to address high-mountain development issues using conservation of the snow leopard as a flagship.

Challenges to their conservation:

Increased habitat loss and degradation, poaching and conflict with communities.

7. National Fund to Control Drug Abuse

In News :

The Social Justice and Empowerment Ministry has recently recommended that **the National Fund to Control Drug Abuse** be used to carry out de-addiction programmes, rather than just policing activities.

About the National Fund to Control Drug Abuse:

- It was created in accordance with a provision of **the Narcotic Drugs and Psychotropic Substances Act, 1985**.
- It had a nominal corpus of ₹23 crore.
- **Funding: Under the NDPS Act,** the sale proceeds of any property forfeited, grants made by any person and institution, and income from the investments of the fund, go towards the fund.
- **Usage of the fund:** The Act states that the fund would be used to combat illicit trafficking of narcotics, rehabilitating addicts, and preventing drug abuse.

World Drug Report 2021:

- Around 275 million people used drugs globally in the last year. Over 36 million people suffered from drug use disorders.
- Rise in the use of cannabis during the pandemic has been reported by most countries.
- Non-medical use of pharmaceutical drugs has also been observed in the same period.
- The latest global estimates say, about 5.5 per cent of the population between 15 and 64 years have used drugs at least once in the past year.
- Over 11 million people globally are estimated to inject drugs – half of them have Hepatitis C.
- Opioids continue to account for the largest burden of disease-linked to drug abuse.

Major Reasons for Drug Abuse:

1. To be accepted by the peers.
2. Increasing economic stress.
3. Changing cultural values.
4. Experimentation.
5. Neurotic pleasure.
6. Ineffective Policing.

Drug abuse cases and numbers in India:

- According to **the National Crime Records Bureau's Crime in India 2020 report,** a total of 59,806 cases were lodged under NDPS Act.
- In 2019, there were 3.1 crore cannabis users and 2.3 crore opioid users.

Indian Government has taken several policy and other initiatives to deal with drug trafficking problem:

1. **The 'Nasha Mukt Bharat Abhiyaan' or a 'Drugs-Free India Campaign'** was flagged off on 15th August 2020 across 272 districts of the country found to be most vulnerable based on the data available from various sources.
2. Ministry of Social Justice & Empowerment has begun implementation of **a National Action Plan for Drug Demand Reduction (NAPDDR) for 2018-2025.**
3. The government has constituted **Narco-Coordination Centre (NCORD)** in November, 2016**.**
4. The government has constituted a fund called **"National Fund for Control of Drug Abuse"** to meet the expenditure incurred in connection with combating illicit traffic in Narcotic Drugs; rehabilitating addicts, and educating public against drug abuse, etc.

8. Detention centre for declared foreigners in Assam

In News :

The Assam Government has overshot a 45-day deadline set by the Gauhati High Court for the completion of **a standalone detention centre for declared foreigners.**

What's the issue?

The court had on August 11 asked the State Government to complete the construction of **the detention centre,** now called **transit camp,** at Matia in western Assam's Goalpara district and file a status report within 45 days.

- The Gauhati High Court had also sought the shifting of 177 inmates across six existing detention centres within as many central jails.

Who is a declared foreigner?

A declared foreigner, or DF, is a person marked by **Foreigners' Tribunal (FT)** for allegedly failing to prove their citizenship after the State police's Border wing marks him or her as an illegal immigrant.

- People adjudged non-citizens are sent to **detention centres.**
- Such people are tried after **the Assam police's Border wing** serve them notice on suspicion of being foreigners.

Foreigners tribunal

Foreigners' Tribunals are **quasi-judicial bodies** established as per the Foreigners' Tribunal Order, 1964 and the Foreigners' Act, 1946.

Composition: Advocates not below the age of 35 years of age with at least 7 years of practice (or) Retired Judicial Officers from the Assam Judicial Service (or) Retired IAS of ACS Officers (not below the rank of Secretary/Addl. Secretary) having experience in quasi-judicial works.

Who can setup these tribunals?

The **Ministry of Home Affairs (MHA)** has amended the Foreigners (Tribunals) Order, 1964, and has empowered **district magistrates in all States and Union Territories to set up tribunals (quasi-judicial bodies)** to decide whether a person staying illegally in India is a foreigner or not.

- Earlier, the powers to constitute tribunals were vested only with the Centre.

Who can approach?

The amended order (Foreigners (Tribunal) Order, 2019) also empowers **individuals to approach the Tribunals.**

- Earlier, only the State administration could move the Tribunal against a suspect.

9. E-waste disposal, a mounting headache

In News :

- The article expresses **concerns over the e-waste recycling system** in New Delhi in particular and India in general.

Background:

E-waste:

- The International Telecommunication Union defines e-waste as **all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use.**
- This waste is classified into six categories: Cooling and freezing equipment like refrigerators, freezers; other equipment such as televisions, monitors, laptops, notebooks and tablets.
- It also comprises fluorescent lamps and other large and small equipment like washing machines, clothes dryers, dish-washing machines, vacuum cleaners and microwaves. Ventilation equipment, small IT and telecommunication equipment like positioning systems (GPS), pocket calculators, routers, personal computers, printers and telephones are also included in the broad definition of e-waste.

E-waste concerns:

- E-waste contains **hazardous substances** such as lead, polychlorinated biphenyls (PCBs), polybrominated biphenyls (PBBs), mercury, polybrominated biphenyl ethers (PBDEs), brominated flame retardants (BFRs), and also valuable substances such as iron, steel, copper, aluminium and plastics.
- E-waste releases harmful chemicals, such as lead, on burning, which **adversely impacts human blood, kidney and the peripheral nervous system.** When it is thrown in landfills, the chemicals seep in the ground water affecting both land and sea animals.

- Electronic waste is emerging as a **serious public health and environmental issue.**

E-waste generation in India:

- **India is the third-largest producer of e-waste after China and the United States.**
  - A study by KPMG and ASSOCHAM says computer equipment account for almost 70 per cent of e-waste in India, followed by telecom/phones (12 per cent), electrical equipment (8 per cent) and medical equipment (7 per cent).
- According to a 2018 report by the Associated Chambers of Commerce and Industry of India (ASSOCHAM), India had generated close to two million metric tonnes of e-waste. The e-waste generation in India is projected to rise to three million metric tonnes owing to increasing digitization.
  - The **country's e-waste generation increased 43 per cent between FY18 and FY20.** The pandemic-induced consumption of electronic devices is set to add to the problem in future.
- **Delhi was among the top e-waste contributors in the country** with 9.5% in the overall e-waste generation.

Concerns:

- The **unprecedented generation of e-waste** is a cause of concern.
- The **high cost of handling and procurement, low margins and underutilisation of capacities** pose basic problems to most formal sector or pollution control board-recognised e-waste handlers.
- A major concern for Delhi and also India in general with respect to the e-recycling system is that despite measures in place for collection and recycling, the **industry has been dependent on informal players** like ragpickers and aggregators without appropriate licences for e-waste disposal.
  - A significant portion of the e-waste generated in India goes to the informal sector. As per available estimates, more than 95% of this waste is handled by the informal sector.
  - The informal sector is not capable of undertaking special treatment for e-waste processing and disposal.
- The private firm roped in by the East Delhi Municipal Corporation (EDMC) for e-waste collection has received very few pickup requests for e-waste collection which could be indicative of the **low awareness of the general citizenry over e-waste handling rules and its significance.**
- A substantial proportion of the pickup requests were cancelled as it involved calls for picking up material in working condition and the users' price expectation was higher than the company's offer.

Governmental efforts:

- India is also the only country in South Asia to have a specific legal framework for handling e-waste since 2011.
- The **E-waste (Management and Handling) Rules** address not just the need to handle e-waste in an environmentally friendly way, but also its transportation, storage and recycling.
- India has also introduced the concept of **extended producer responsibility (EPR).** In 2016, the rules were tweaked to introduce **Producer Responsibility Organization (PRO)** while bringing buy-back, deposit refund and exchange schemes under EPR.

Recommendations:

- India needs a **multipronged approach** to streamline e-waste management.

Creating awareness:

- Given the low level of awareness among the people, there is the need to create awareness of e-waste through various mediums.
    - Making contact through resident welfare associations could allow the administration to reach out to a larger number of people in a shorter timeframe.
    - Use of social media platforms also offers an easy and affordable way to create awareness among the people.
- **People should be encouraged to efficiently use their electronic devices** by regularly maintaining them which would help extend the average life of the electronic devices. People should be **encouraged to break consumerist patterns**. This would invariably help reduce e-waste generation.

Formalizing the informal sector:

- Given the fact that a significant portion of the e-waste goes to the informal sector and the concerns associated with it, there is a need to take appropriate policy measures to formalize the informal sector.
- This could involve measures such as **easy licensing of existing informal workers, offering incentives for those with licenses in the form of state support, easy credit facilities, etc.**
- The role of informal players cannot be denied and they should be included as part of the solution.
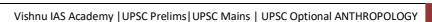
Increasing private sector participation:

- **More private players should be involved in e-waste collection and processing.** They can bring in the **much-needed efficiency and technological solutions** for the mounting e-waste problem in India.
- The **revenue from valuable metal extraction** from e-waste along with **state support through tax benefits** can incentivize the private sector participation in the sector.
  - E-waste processing can yield precious metals such as copper, iron, tin, nickel, lead, zinc, silver, gold and palladium. Printed circuit boards contain rare and precious metals such as ruthenium, rhodium, palladium, osmium, iridium and platinum – together referred to as the **Platinum Group Metals.**

Digital solutions:

- Using **online portals** which people can make use of to raise pickup requests would lead to better efficiency in the e-waste recycling system.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. **Step towards more LGBTQIA+ affirmative medical curriculum doesn't go far enough**

In News

The National Medical Commission (NMC), the body responsible for regulating medical education in India, released an advisory regarding the LGBTQIA+ community and the necessary changes in the competencies of its competency-based medical education (CBME) curriculum.

Exclusion of LGBTQIA+ community in medication

- Medical education in India has focussed only on the binary of male and female, heterosexuality and cis-gendered lives, while excluding homosexuality and gender non-binary and transgender issues.
- This results in the exclusion of the LGBTQIA+ community.
- Even with the release of the competency-based medical curriculum in August 2019, the curriculum continues to include a **queerphobic syllabus.**

About the NMC notification

- **The Transgender Persons (Protection of Rights) Act, 2019** mandates governments to take measures for the "review of medical curriculum and research for doctors to address their [transgender] specific health issues," but no action has been taken since then.
- In June 2021, in response to a case filed by a queer couple, the Madras High Court laid down a set of guidelines and directed the NMC to ban queerphobic practices such as conversion therapy which aims to forcibly change the sexual orientation of a person.
- In its notification, the NMC has advised medical colleges to teach gender in a way that is **not derogatory to the queer community.**
- The authors of medical textbooks have also been asked to amend the books to remove any harmful contents regarding virginity and the queer community.

Issues with the NMC notification

- While the NMC advisory title mentions necessary changes in the competencies of its CBME curriculum, **there are no specifications on what these changes are.**
- At the same time, the CBME curriculum itself mentions queerphobic things that are to be taught to students.
- Certain acts are called as sexual offences even though the Supreme Court has **read down Section 377.**
- Also, the competencies which will make a future Indian doctor respectful and empathetic in treating a queer patient are missing.

Way forward

- The NMC must start by **recognising the flaws in its own CBME curriculum** and explicitly state the changes required.
- Specific guidelines on how to make healthcare queer-affirmative are needed.
- The directive also needs to **specify changes across several subjects** and not just forensic medicine and psychiatry.
- For this, there needs to be a **participatory stakeholder consultation** towards the development of a queer-affirmative curriculum.
- Finally, there needs to be clarity on what the NMC plans to do for tackling queerphobia in the current set of health professionals.

Conclusion

Without these changes, equitable access to healthcare for queer persons will remain a faraway dream.

2. National Fund to Control Drug Abuse

In News : The Social Justice and Empowerment Ministry has recently recommended that the National Fund to Control Drug Abuse be used to carry out de-addiction programmes, rather than just policing activities.

Key takeaways

- The fund was created in accordance with a provision of the Narcotic Drugs and Psychotropic Substances Act, 1985, and had a nominal corpus of Rs. 23 crore.

- The Fund shall be applied by the Central Government to meet the expenditure incurred in connection with the measures taken for combating illicit traffic in, or controlling abuse of, narcotic drugs and psychotropic substances for all or any of the purposes specified in sub-section (1) of section 71.

About The Narcotic Drugs and Psychotropic Substances Act, 1985

- It is also known as the NDPS Act.
- It prohibits any individual from engaging in any activity consisting of production, cultivation, sale, purchase, transport, storage, and/or consumption of any narcotic drug or psychotropic substance.

About psychotropics and Narcotics

- From a medical point of view, psychotropics designate chemical substances that act upon the mind, that is on the conscious or unconscious mental life of an individual.
- Narcotics include substances that cause stupor (unconscious), muscular relaxation and a reduction or elimination of sensitivity.

3. PM Ayushman Bharat Health Infrastructure Mission

In News: PM Ayushman Bharat Health Infrastructure Mission will be one of the largest pan-India schemes for strengthening healthcare infrastructure across the country. It will be in addition to the National Health Mission.

- **Objective of PM Ayushman Bharat Health Infrastructure Mission:** To fill critical gaps in public health infrastructure, especially in critical care facilities and primary care in both the urban and rural areas.
- Targets to build an IT enabled disease surveillance system by developing a network of surveillance laboratories at block, district, regional and national levels, in Metropolitan areas. Integrated Health Information Portal will be expanded to all States/UTs to connect all public health labs.
- Work towards building up trained frontline health workforce to respond to any public health emergency.
- It will provide support for 17,788 rural Health and Wellness Centres in 10 High Focus States. Further, 11,024 urban Health and Wellness Centres will be established in all the States.

GS 3 : Economy, Science and Technology,Environment

4. Nutritional security and climate-friendly agriculture for Punjab

Context

As per the latest **Situation Assessment Survey (SAS)** of agricultural households conducted by the National Statistical Office (NSO), an average Indian farmer earned Rs 10,218 per month in 2018-19 (July-June).

SAS analysis: Variation across the states and cause of concern for Punjab

- Across states, the highest income was received by a farming household in **Meghalaya (Rs 29,348) followed by Punjab (Rs 26,701), Haryana (Rs 22,841), Arunachal Pradesh (19,225) and Jammu and Kashmir (Rs 18,918).**
- While the **lowest income levels** were in West Bengal (Rs 6,762), Odisha (Rs 5,112) and Jharkhand (Rs 4,895).
- But this is not a fair comparison as **holding sizes vary widely across states.**
- After normalising these incomes of agri-households by their holding sizes, as in the SAS, Punjab's ranking on per hectare income falls from 2nd to 11th and Haryana goes down from 3rd to 15th (see figure).
- The states that would do well on this score are Jammu and Kashmir, Kerala, Meghalaya and Arunachal Pradesh.
- In these states, people earn their income from cultivating fruits and vegetables, spices, and livestock.
- These are high value in nature, not linked to MSPs, and market and demand-driven.
- As per the SAS, the average operated area per holding for Punjab is 1.44 ha (we have used that in the figure), but the Census gives a much higher value of 3.62 ha of average operational holding.
- If we normalise incomes of agri-households using **Census values of average holding sizes**, Punjab's rank would go further down to 21st (household monthly income Rs 7,376) out of 28 states.

How can farmers in Punjab and Haryana augment their incomes with more sustainable agriculture?

1) Swith from paddy to maize

- Punjab's former Chief Minister Amarinder Singh had approached the Centre with an idea to create a fund of around Rs 25,000 crore to help farmers **switch from paddy to maize.**
- The Centre should give this idea a serious thought with the following modifications:
- One, the fund should be **under a five-year plan** to shift at least a million hectares of paddy area (out of a total of 3.1 million hectares of paddy area in Punjab) to maize.
- Two**, the corpus should have equal contributions from the Centre and state.**
- Three, since Punjab wants that farmers be given **MSP for maize,** an agency, the **Maize Corporation of Punjab (MCP), should be created to buy maize from farmers at MSP.**
- Four, this agency should enter into contracts with ethanol companies, and much of this maize can be used **to produce ethanol** as the poultry and starch industries will not be able to absorb this surplus in maize once a million hectares of paddy area shifts to maize.
- Fifth, maize productivity must be as competitive as that of paddy in Punjab and the **best seeds should be used for that purpose.**
- This is to ensure that **ethanol from maize is produced in a globally competitive manner.**
- The GoI's policy for **20 per cent blending of ethanol in petrol** should come in handy for this purpose.

2) Diversification

- Other parts of the diversification strategy have to be along the lines of **increasing the area under fruits and vegetables**, and a more focused policy to build efficient value chains in not just fruits and vegetables but also livestock and fisheries.
- They are more nutritious and the SAS data shows that their profitability is much higher in these enterprises than in crop cultivation, especially cereals.
- The sector needs to be backed by proper **processing, grading and packaging infrastructure** to tap its full potential.

Benefits of switching to maize from paddy

- Punjab will arrest its **depleting water table** as maize needs less than one-fifth the water that paddy does for irrigation.

- Also, Punjab will **save much on the power subsidy to agriculture,** which was budgeted at Rs 8,275 crore in the FY2020-21 budget, as paddy irrigation consumes much of the power subsidy.
- This saving subsidy resulting from the switch from paddy to maize can be used to fund a part of the state's contribution to the Maize Corporation of Punjab.
- This could result in a win-win situation for all — farmers, the Government of Punjab and the country — as there will be **lesser methane emissions and less stubble burning.**
- Moreover, **ethanol will also reduce GHG emissions in vehicular pollution.**

Conclusion

Their income on a per hectare basis needs to increase more sustainably, protecting the state's land, water and air from further degradation, and producing more nutritious food. Punjab can then shine again on the nutritional security front with sustainable and climate-resilient agriculture.

5. India's First Banni Buffalo IVF Calf Born

With the birth of first IVF calf of a Buffalo breed namely Banni in the country, India's Ovum Pick-Up (OPU) – IVF work has reached to next level.

Banni Buffalo

- Banni buffaloes are also known as "Kutchi" or "Kundi".
- The breeding tract includes the Banni area of Kutchchh district of Gujarat.
- The breed is maintained mostly by Maldharis under locally adapted typical extensive production system in its breeding tract.

What makes them unique?

- Banni buffaloes are trained to graze on Banni grassland during night and brought to the villages in the morning for milking.
- This traditional system of buffalo rearing has been adapted to avoid the heat stress and high temperature of the day.
- It has unique qualities of adaptation such as the ability to survive water scarcity conditions, to cover long distances during periods of drought and disease resistance.

6. Amended Technology Up-gradation Fund Scheme

Union Minister of Textiles has reviewed the Amended Technology Up-gradation Fund Scheme (ATUFS) to ease of doing business, bolstering exports & fuelling employment.

What is ATUFS?

- The Ministry of Textiles had introduced Technology Upgradation Fund Scheme (TUFS) in 1999.
- It is a credit linked subsidy scheme intended for modernization and technology up-gradation of the Indian textile industry.
- It aims at promoting ease of doing business, generating employment and promoting exports. Since then, the scheme has been implemented in different versions.
- The ongoing ATUFS has been approved in 2016 and implemented through web based iTUFS platform.
- Capital Investment Subsidy is provided to benchmarked machinery installed by the industry after physical verification.

7. Amended Technology Up-gradation Fund Scheme (ATUFS)

Context Union Minister of Textiles reviewed the Amended Technology Up-gradation Fund Scheme (ATUFS) to boost the Indian textile industry by enabling the ease of doing business, bolstering exports and fuelling employment.

Key takeaways

- The Ministry of Textiles had introduced Technology Upgradation Fund Scheme (TUFS) in 1999 as a credit linked subsidy scheme.
- **Objective:**
  - modernization and technology up-gradation of the Indian textile industry,
  - promoting ease of doing business,
  - generating employment and promoting exports.
- Since then, the scheme has been implemented in different versions.
- The ongoing ATUFS has been approved in 2016 and implemented through the web based iTUFS platform.
- **Capital Investment Subsidy** is provided to benchmarked machinery installed by the industry after physical verification.
- ATUFS was approved for a period from 2015-16 to 2021-22 with an allocation of Rs. 17,822 crore

- The scheme is administered with a two stage monitoring mechanism by Technical Advisory-cum-Monitoring Committee (TAMC) and Inter-Ministerial Steering Committee (IMSC).
- In 2019, IMSC decided to introduce physical verification of machinery and computation of subsidy before releasing committed liability under previous versions of the scheme.

Prelims Practice Questions

1. With reference to COVID-19 and vaccines, how is 'hybrid immunity' acquired:

- a. Through natural infection and herd immunity
- b. Through natural infection and a single dose of vaccine
- c. Through two doses of vaccine and herd immunity
- d. Through one dose of vaccine, natural immunity and herd immunity

Answer: b

Explanation:

- Hybrid immunity is acquired through natural infection and a single dose of vaccine.
- A new study has shown that a combination of natural infection with a single dose of vaccine (hybrid immunity) provides greater immunity than either natural infection without vaccination or full vaccination in infection-naïve individuals.

2. With reference to the history of India, 'ulgulan' or the great tumult is the description of the which of the following?

- a. The revolt of 1857
- b. The Mappila rebellion of 1921
- c. The Indigo revolt of 1859-1860
- d. Birsa Munda's revolt of 1899-1900

Answer: d

Explanation:

- Munda Rebellion is one of the prominent 19th century tribal rebellions in the subcontinent. Birsa Munda led this movement in the region of south Ranchi in 1899-1900.
- Aimed at establishing Munda Raj or Munda rule in this region, revolt came to be known as The Ulgulan or "the Great Tumult".

3. The Bangabandhu Friendship Exhibition Centre in Bangladesh has been funded by:

a. India
b. EU
c. China
d. Japan

Answer: c

Explanation:

- Bangabandhu International Conference Center formerly known as Bangladesh China Friendship Conference Center is an international conference center located in Dhaka.
- It has been funded by China.

4. The Tsugaru Strait connects

a. Andaman Sea with South China Sea
b. South China Sea with Gulf of Thailand
c. South China Sea with Philippine Sea
d. Sea of Japan with Pacific Ocean

Answer: d

Explanation:

- The Tsugaru Strait is a strait between Honshu and Hokkaido islands in northern Japan connecting the Sea of Japan with the Pacific Ocean.

5. The creation of National Judicial Infrastructure Authority of India (NJIAI) was first proposed by-

    a. 2nd Administrative Reforms Commission
    b. NITI Aayog
    c. 48th Chief Justice of India N.V.Ramana
    d. 21st Law Commission of India

Answer: c

Explanation:

- The serving 48th Chief Justice of India, N.V. Ramana had proposed the National Judicial Infrastructure Corporation in March, 2021 to develop judicial infrastructure in trial courts.

6. Which of the following statements are correct?

    1. In Assam, Brahmaputra valley is dominated by Assamese speakers and Barak valley is dominated by Bengali speakers.
    2. The Barak Valley is located in the southern region of Assam.

Which of these statements are correct?

    a. 1 only
    b. 2 only
    c. Both 1 and 2
    d. Neither 1 nor 2

Answer: c

Explanation:

- The Barak Valley is located in the southern region of Assam. It is dominated by Bengali speakers unlike the Brahmaputra valley which is dominated by Assamese speakers.

Mains Practice Questions

1Q. India needs to harvest quantum technology for strategic and economic development. Discuss. (250 words)

Approach
- Briefly highlight what quantum technologies are.
- Highlight its strategic and economic advantage to India.
- Highlight challenges India could face in such endeavour
- Highlight some measures to overcome such challenges.

2Q. Discuss the contributions of Swami Vivekanand's philosophy in the evolution of ethics? (150 words)

Approach
- Start your answer by briefly describing the basic principles of Swami Vivekanand's philosophy.
- Discuss the ideas of Swami Vivekanand and their ethical dimensions.
- Conclude by summarizing your answer and highlighting the utility of Swami Vivekanand's philosophy in today's context.