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## THE HINDU

### GS 1 : Heritage and culture ,Geography of the World and Society

#### 1. Bay of Bengal, fomenting Yaas, hotter than normal for season

##### Context:

- **Cyclone Yaas** expected to make landfall on the Odisha and West Bengal coastal districts.

##### Background:

##### Cyclones in India:

- Cyclones in the Bay of Bengal are an annual phenomenon in the **pre monsoon period** during late April- May.
- They are attributed to **increased ocean surface temperatures** of the North Indian Ocean during this season.
- Traditionally the cyclones originating in the Bay of Bengal area have been more in number than those originating in the Arabian Sea area because of more favourable conditions for cyclone formation in the Bay of Bengal waters.
- Also the cyclones originating in the Bay of Bengal region have caused maximum damage in India given the **counter clockwise movement of these cyclones thus making landfall on the eastern Indian coastal areas**.
- About 60% of the cyclones that form in these seas make landfall in India causing significant damage and devastation.
- Example: **Amphan super cyclone** of 2020 in West Bengal, **Super cyclone of 1999** in Odisha, **Fani cyclole of 2019** in Odisha etc.
- Unlike these comparatively lower number of cyclones originating in the Arabian sea make their landfall on Indian coasts.
- However there seems to be a **change in this trend with a relative decrease in the number of cyclones in the Bay of Bengal and a rise in the Arabian Sea** as being observed in the last 4 years.
- The cyclones are an important phenomenon from a climatological point of view as these **pre monsoon cyclones are favourable for drawing in the monsoon** into the Andamans and subsequently to the Kerala coast.

##### Details:

- Climate scientists say the **temperature in the North Bay of Bengal waters has reached temperatures up to 32 degrees Celsius**. This is at least two degrees warmer than what is normal for this time of the year.
  - The higher temperature will lead to more evaporation of water and result in **more intense cyclones**.
- However, given that the **distance to landfall is short**, this has prevented the cyclone from drawing the excess thermal energy from the warm waters and intensifying into an extremely severe cyclone.
  - Cyclone Yaas is predicted to make landfall as a very severe cyclone.

#### **Concern with respect to storm surge:**

- The storm surges are expected to be 2 -4 meters above astronomical tide levels along the West Bengal and Odisha coasts.
  - A storm surge is a **rise in sea level that occurs during tropical cyclones**. The storms produce strong winds that push the water into shore, which can lead to flooding. This makes storm surges very dangerous for coastal regions.
  - It is measured as the rise in water level above the normal tidal level, and does not include waves.
- The storm surge is a matter of concern because the **cyclone will coincide with the full moon tide** and the water level in the seas and river may rise further leading to breach of embankments.
  - Tides are the rise and fall of sea levels caused by the combined effects of the gravitational forces exerted by the Moon and the Sun, and the rotation of the Earth.
  - During the new moon and full moons, the tidal force due to the Sun reinforces that due to the Moon. **The tide's range is then at its maximum; this is called the spring tide.**

## **GS 2 : Polity, Governance, International Relations**

### **2. Still grappling with online classes**

#### **Background:**

- The COVID-19 pandemic has resulted in a **decisive shift from traditional modes of classroom education to online education**.

#### **Concerns:**

- Though the online education mode has allowed maintaining a semblance of continuity in education, yet online education in India suffers from the following lacunae.

#### **Lack of requisite infrastructure:**

- The **low public expenditure in the education sector** has resulted in poor infrastructure in state run universities.
  - The **government spent only 3.2% of its GDP on education in 2020-21.**
- Even this low expenditure is marked by **stark differences within government institutions**. While centrally funded elite institutes such as the IITs, IIMs, NITs and Central universities receive a large proportion of government funds, the financial health of state universities in the country continues to be worrisome.
- This allowed centrally funded elite institutes to adapt to the new requirement quickly. They were able to launch video channels and upload e-content on institutional websites and digital platforms.
- However, a **majority of the state universities still struggle without proper Internet connectivity and bandwidth in their campuses**. Also the severe crunch of human resources in universities of India is an added challenge to the already overburdened teachers.

#### **Digital divide:**

- Many of the **students lack the facilities to attend online classes**.
- Despite impressive growth in digital connectivity, **internet penetration is still low** in India.
- The difference in students' access to digital education, will lead to the exclusion of the less privileged student community and deepen the existing inequalities in the society.

#### **Lack of appropriate study material:**

- The lack of appropriate study material is a major concern too for online education. Merely using scanned lecture notes or powerpoint presentations does not serve any meaningful purpose.
- There has been the **absence of application-based learning avenues for students** in the online education mode. Without this the practical field and laboratory-based learning would suffer.

#### **Recommendations:**

- Given that there is talk of more COVID-19 waves, it is imperative for the government to embrace a pragmatic approach to online education.

- The higher education institutions were directed by the government to shift from classroom education to online education, without taking cognisance of changes needed in infrastructure, training, etc. Neither the institutions nor the students were prepared for this sudden change. The **transition from conventional classroom teaching and learning to online education needs to be done in a phased manner.**

#### **Ensure funding:**

- The government should provide sufficient financial support to the state universities to build the requisite infrastructure for online education. The government must provide suitable **financial aids to state universities to obtain appropriate IT tools, platforms, devices etc.**
  - The Fifteenth Finance Commission in its report has also recommended investing in online education.

#### **Bridging digital divide:**

- Development of **massive open online courses (MOOCs), direct-to-home (DTH) content development**, digital classrooms and provision of devices (laptop/tablets) for 25 lakh students belonging to the socially and economically weaker sections of society could help close the digital gap to some extent.

#### **Additional information:**

- There are 993 universities, 39,931 colleges, 3.73 crore students and 14.16 lakh teachers in India, according to All India Survey on Higher Education (2018-19).

### **3. Panel to define offences of speech, expression**

#### **Context:**

- The **Committee for Reforms in Criminal Laws** is likely to propose a separate Section on “offences relating to speech and expression.”

#### **Background:**

#### **Shreya Singhal v. Union of India:**

- The Supreme Court in 2015 had scrapped **Section 66A of the Information Technology Act, 2000** that provided punishment for sending offensive messages through communication services.

### T.K. Viswanathan committee:

- In the backdrop of the SC judgment in the Shreya Singhal case, the central government had appointed a committee headed T.K. Viswanathan. This committee had recommended **stricter laws for online “hate speech”**.
- Following this the Home Ministry had written to the Law Commission to prepare a distinct law for online “hate speech”.

### Committee for Reforms in Criminal Laws:

- The Committee for Reforms in Criminal Laws was constituted by Union Home Ministry to **suggest reforms to the IPC framed in 1860 and the Code of Criminal Procedure (CrPC)**
- The committee is undertaking extensive consultations with relevant stakeholders and is expected to submit its report soon.
- The suggestions received by the Committee for Reforms in Criminal Laws will be examined by the Ministry before the changes are adopted.

### Details:

- There is **no clear definition of what constitutes a “hate speech” in the IPC**.
- Legally speaking, for criminal Sections to be invoked against a speech it has to lead to violence or disturbance of law and order.
- The **Bureau of Police Research and Development** in its recently published manual has defined hate speech as a “language that denigrates, insults, threatens or targets an individual based on their identity and other traits (such as sexual orientation or disability or religion etc.)”
- Given the **increasing threat posed by hate speech**, the attempt to define hate speech is a welcome move.

### 4. OSCs to be set to aid women survivors

- The Central government will set up **One Stop Centres (OSCs) across 10 foreign missions** to provide assistance to Indian women who are survivors of gender-based violence.
  - One stop centre is a **centrally sponsored scheme of Ministry of Women and Child Development (MWCD)**. It is intended to support women affected by violence, in private and public spaces, within the family, community and at the workplace.

### 5. One-state solution, the way forward in Palestine

### Two state solution:

- The two-state solution to the Israeli–Palestinian conflict envisions an **independent State of Palestine alongside the State of Israel, west of the Jordan River.**
- There have been many diplomatic efforts to realize a two state solution, starting from the 1991 Madrid Conference. Then there was the **1993 Oslo Accords**, the failed **2000 Camp David Summit** and the **Taba negotiations of 2001.**

#### Context:

- In the light of the ongoing Israel and Hamas face off, there have been calls for a two state solution.

### 6. CJI made 'statement of law' at CBI panel

#### Context:

- The high level committee consisting of the Prime Minister, Chief Justice of India and the leader of the opposition in Lok sabha had recently convened to appoint a director to the Central Bureau of Investigation.
  - **Subodh Kumar Jaiswal**, currently Director General of the Central Industrial Security Force, has been appointed as CBI Director.

#### Details:

- The Chief Justice of India N.V. Ramana during the meeting had asked to **avoid officers with less than six months left to retire for appointment as CBI Director.**
- This opinion of the CJI should be viewed as just a **“statement of law”** flowing from the judiciary’s observations in many landmark cases.

#### Cases which guide appointment of director to CBI:

##### Vineet Narain judgment:

- As per the Vineet Narain judgment of 1998, the Director of CBI is to hold the post for not less than two years.
- He/she may not be transferred except with the previous consent of the high-level appointment committee.

##### 2019 Supreme Court order:

- **The six-month minimum residual tenure rule was introduced by the Supreme Court in a 2019 order.**



- It had noted that recommendation for appointment to the post of Director General of Police by the Union Public Service Commission and preparation of panel should be purely on the basis of merit from officers who have a minimum residual tenure of six months, that is, officers who have at **least six months of service prior to retirement**.
- The apex court had reasoned that officers with only a few days of service may be in an insecure state of mind and this would not augur well for the functioning of the CBI which has jurisdiction to investigate offences pertaining to 69 Central laws, 18 State Acts and 231 offences in the IPC.

### **Laws which guide appointment of director of CBI:**

Central Vigilance Commission Act, 2003:

- CBI works under the overall supervision of CVC in matters related to the Prevention of Corruption Act, 1988. **The CVC act provides for a security of two year tenure in office for CBI Director.**
- The CVC is also involved in the appointment of officers to the post about the level of SP and above except Director and also recommend the extension or curtailment of tenure of such officers in the DSPE (CBI) -An investigation wing of CBI.

### **7. Slowing the pace of India's mucormycosis threat**

**Context:**

- Hospitals across India have started to report an **increasing number of cases of mucormycosis**.

**Mucormycosis:**

- Mucormycosis is an aggressive and invasive **fungal infection** caused by a group of molds called mucormycetes.
- It is also known by the name '**black fungus**'.

**Causative factors:**

- According to a study, **Diabetes mellitus is the most common underlying cause**, followed by haematological malignancies and solid-organ transplants for mucormycosis.
  - Diabetes mellitus was reported in 54% to 76% of cases, according to a report.



### Effect:

- It can affect various organs but is currently manifesting as an **invasive rhino-orbito-cerebral disease**, affecting the ear, nose, throat, and mouth and at times the brain, leading to blindness, stroke or death. It can cause a lot of damage internally and can be fatal if not detected early.
  - The Centers for Disease Control and Prevention, U.S., calls it a serious but rare disease.

### Treatment:

- The main line of treatment is an **anti-fungal drug called amphotericin B**, which is given over an extended period of time under the strict observation of a physician. Surgery to remove the fungus growth might also be warranted.

### Reasons for sudden spike in cases:

- Mucormycosis has been affecting patients who have recently recovered from COVID-19. The sudden increase in the mucormycosis cases can be attributable to the following reasons:
  - The **indiscriminate use of a high dose of steroids** in COVID-19 patients, sometimes even in minimally symptomatic patients is a major reason. This leads to spikes in the sugar level among diabetics, which, in turn, renders them vulnerable.
  - The **use of monoclonal agents like Tocilizumab** may be a factor, too. Monoclonal antibodies are man-made proteins that act like human antibodies in the immune system. The overuse of such antibodies reduces the inherent immunity of the body in the long run making it vulnerable to future infections.
  - Though the disease is not contagious, the **use of nasal prongs and other devices for oxygen delivery** and possible breach of sterile conditions can possibly lead to cross-infection and **hospital-acquired infection**.

### Recommendations:

- Following appropriate **treatment protocols as recommended by the World Health Organization for COVID-19**, including **rational use of steroids and monoclonal antibodies** only when they can help a patient, is important.
- In case of usage of steroids, **constant monitoring of sugar levels** and resorting to insulin use to control these levels if required, is essential.
- Recognising the symptoms and **seeking treatment early** would be the key intervention. Like most illnesses, if detected early, mucormycosis can be cured.

## GS 3 : Economy, Science and Technology, Environment

### 8. SEBI to appoint forensic auditors for listed firms

- Markets regulator SEBI is looking to appoint auditors for conducting forensic audits of financial statements of listed companies as part of efforts to curb frauds.
  - **A forensic audit is an examination and evaluation of a firm's or individual's financial records.** During a forensic audit, an auditor seeks to derive evidence that could potentially be used in court.
  - A forensic audit is used to **uncover criminal behavior such as fraud or embezzlement.**

### 9. New IT rules come into force today; will comply, says FB

#### Context:

- **'The Information Technology (Guidelines for Intermediaries and Digital Media Ethics Code) Rules, 2021'** would come into effect soon.
  - The IT rules, 2021 contain rules for social media intermediaries such as Facebook, WhatsApp, Google, Twitter and Telegram.

#### Details:

- The Information Technology (Guidelines for Intermediaries and Digital Media Ethics Code) Rules, 2021 also mandate that social media and messaging platforms will have to adhere to new requirements in assisting investigative agencies of the government.
- The Electronics and Information Technology Minister called it a soft-touch oversight mechanism to deal with issues such as the persistent spread of fake news and other misinformation

#### Concerns:

#### Non compliance:

- Despite the closing in on the last date for compliance, **a majority of platforms are yet to fully comply with the new rules.**
- While all the concerned companies have vowed to comply with the new rules, some have sought more time for compliance and also asked for more consultation with the government agencies over some provisions of the rules.

### Chance of misuse:

- Some experts have pointed out that the new rules **may amount to an over reach** and lead to suppression of the right to free expression of people on these platforms.
- Also the new rules can arm the ruling government to take **undue advantage of the power to regulate** to suppress views against the ruling dispensation.

### Consequences of non compliance:

- Though there is no clarity on the immediate consequences of non-compliance. However, experts say these companies could lose the **'safe harbour' protection**.
  - The safe harbour protection gives the social media intermediaries **protection against liability (civil as well as criminal) for content posted on their platform by third party users**.
  - The safe harbour protection is granted under **Section 79 of the IT Act**.

### 10. 'Use of cloud tech can help boost profits'

- **Cloud computing is the on-demand availability of computer system resources**, especially data storage and computing power, **without direct active management by the user**. The term is generally used to describe data centers available to many users over the Internet.
- The use of cloud technology will help bring new solutions to market. It will also help leverage the benefits of artificial intelligence and automation.

### Context:

- A survey by the Infosys Knowledge Institute has shown that the **effective adoption of cloud technologies can help add to enterprise profits**.

**GS 2 : Polity, Governance, International Relations**

**1.WHO BioHub Initiative**

**Why in News**

The **World Health Organization (WHO)** and **Switzerland** have launched a **BioHub facility** that will allow **pathogens sharing** between laboratories and facilitate “analysis and preparedness” against them.

**Key Points**

- **About BioHub Facility:**
  - The facility will help in **safe reception, sequencing, storage and preparation of biological materials** for distribution to other laboratories, so as to facilitate global preparedness against these pathogens.
  - It will **enable member states to share biological materials with and via the BioHub** under pre-agreed conditions, including biosafety, biosecurity, and other applicable regulations.
  - In parallel, WHO will **broaden its BioHub System for the use of biological materials by qualified entities** – such as manufacturers – for the development of medical by-products for fair allocation to countries.
- **Significance:**
  - The **Covid-19** pandemic and other outbreaks and epidemics have underscored the **importance of rapidly sharing pathogens** to help the global scientific community **assess the risk and develop countermeasures** such as diagnostics, therapeutics and vaccines.
    - Pathogens **have been shared bilaterally** between countries: A process that **can be sluggish and deny the benefits** to some.
  - This will ensure the **timely sharing of epidemiological and clinical data** as well as **biological materials**.
  - The move will help **contribute to the establishment of an international exchange system** for novel coronavirus SARS-CoV-2 and other emerging pathogens.

**Pathogens**

- **Definition:**
  - A pathogen is a **biological agent that causes disease or illness**.  
**Zoonotic pathogen** refers to pathogens naturally transmitted between animals and humans.
- **Types of Pathogens:**
  - **Virus:**
    - Viruses are made up of a piece of genetic code, such as DNA or RNA, and protected by a coating of protein. Viruses invade host cells within the body. They then use the components of the host cell to replicate, producing more viruses.
    - **Examples of diseases caused by viruses: Chickenpox, Flu (influenza), Covid-19, Human immunodeficiency virus (HIV/AIDS), Mumps, measles and rubella.**
  - **Bacteria:**
    - Bacteria are microorganisms made of a single cell. They are very diverse, have a variety of shapes and features, and have the ability to live in just about any environment, including in and on the body.
    - **Examples of diseases caused by bacteria: Cholera, Leprosy, Tuberculosis, Plague, Syphilis, Anthrax etc.**
  - **Fungi:**
    - Fungi can be found just about everywhere in the environment, including indoors, outdoors, and on human skin. They cause infection when they overgrow.
    - **Examples of Fungal Infection: Mucormycosis, White Fungus, Yellow Fungus.**
  - **Parasites:**
    - Parasites are organisms that behave like tiny animals, living in or on a host and feeding from or at the expense of the host. Though parasitic infections are more common in tropical and subtropical regions, they can occur anywhere.
    - **Diseases caused by Parasite: Malaria, African trypanosomiasis, babesiosis, leishmaniasis, and toxoplasmosis etc.**
- **Antimicrobial Resistance:**
  - It is the **resistance** acquired by any microorganism (bacteria, viruses, fungi, parasite, etc.) against antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics) that are used to treat infections.

## 2. Country in news: Belarus

### In news

- The President of Belarus, Alexander Lukashenko sparked international outrage after his regime forced a commercial airline flying from Greece to **Lithuania** to land in its territory allegedly on the pretext of a bomb scare, so it could arrest a dissident journalist on board.

### Key takeaways

- The journalist, Roman Protasevich, is a prominent opponent of Lukashenko.
- He had been living in exile in neighbouring Lithuania since 2019.
- He is also the co-founder of the NEXTA media outlet on social media platform Telegram.
- The regime has also put his name on a list of terrorists, and if convicted, he could face the death penalty.
- Western leaders have denounced the incident.

### Important value additions

- Belarus is a landlocked country in Eastern Europe.
- It is bordered by Russia, Ukraine, Poland, and Lithuania, and Latvia (See the map)
- **Capital:** Minsk
- During the dissolution of the Soviet Union, Belarus declared independence in 1991.

## 3. Total Lunar Eclipse and Supermoon

### Why in News

Two celestial events - **Total Lunar Eclipse and Supermoon** - together coincide on 26<sup>th</sup> May 2021.

### Key Points

- **Supermoon:**
  - A supermoon **occurs when the Moon's orbit is closest to the Earth** at the same time that the **Moon is full**.
    - As the **Moon orbits the Earth**, there is a point of time when the **distance between the two is the least** (called the **perigee**) and a point of time when the **distance is the most** (called the **apogee**).
  - Since a **full Moon** appears at the point of **least distance** from **earth**, not only does it appear to be **brighter** but it is also **larger than a regular full moon**.



- According to NASA, the term supermoon was **coined by astrologer Richard Nolle in 1979**. In a typical year, there may be two to four full supermoons and two to four new supermoons in a row.
- **Lunar Eclipse:**
  - **About:**
    - Lunar eclipse **takes place when the Moon moves into the Earth's shadow**. The **Earth has to be directly between the Sun and the Moon**, and a lunar eclipse can **only** take place during a **full Moon**.
    - First, the Moon moves into the **penumbra** – the part of the Earth's shadow where not all of the light from the Sun is blocked out. Part of the Moon's disc will look dimmer than a regular full Moon.
    - And then the Moon moves into the Earth's **umbra**, where direct light from the Sun is totally blocked out by the Earth. This means the only light reflecting off the Moon's disc has already been refracted, or bent, by the Earth's atmosphere.
  - **Total Lunar Eclipse:**
    - During this, the whole of the **lunar disc** enters the **Earth's umbra**, so the **Moon appears reddish (Blood Moon)**. This won't last forever, though.
    - After about 14 minutes, the **Moon will move out of Earth's umbra** and back into its **penumbra**. In **total**, the **lunar eclipse** will last a few hours.
    - **Red light has a longer wavelength than blue light**, which gives the **lunar eclipse** its characteristic **reddish colour**.
      - On Earth, we see the same effect **during sunrises and sunsets**, when the sky has a more reddish glow than during the day.

## Total Solar Eclipse

- **Total solar eclipses** occur when the **New Moon comes between the Sun and Earth** and casts the darkest part of its shadow, the umbra, on Earth. A **full solar eclipse**, known as totality, is **almost as dark** as night.
- During a **total eclipse** of the Sun, the Moon covers the **entire disk of the Sun**. In partial and annular solar eclipses, the Moon blocks only part of the Sun.
- When the Moon completely **covers the disk** of the Sun, only the **Sun's corona is visible**.
- It is **called Total eclipse** because at the maximum point of the eclipse (midpoint of time of totality), the sky goes dark and **temperatures can fall**.



## **GS 3 :Economy, Science and Technology,Environment**

### **4. NGT upholds rights of pastoralists in Banni Grasslands**

The National Green Tribunal (NGT) ordered all encroachments to be removed from Gujarat's Banni grasslands.

#### **Banni Grasslands**

- Banni Grasslands form a belt of arid grassland ecosystem on the outer southern edge of the desert of the marshy salt flats of Rann of Kutch.
- They are known for rich wildlife and biodiversity and are spread across an area of 3,847 square kilometers. Two ecosystems, wetlands and grasslands, are juxtaposed in Banni.
- They are currently legally protected under the status as a protected or reserve forest in India.
- Wildlife Institute of India (WII) has identified this grassland reserve as one of the last remaining habitats of the cheetah in India and a possible reintroduction site for the species.
- The region hosts a nomadic pastoralist community, the Maldharis, whose livelihoods depend on this protected shrub-savanna.

#### **What is the recent NGT verdict?**

- The court also said the Maldharis will continue to hold the right to conserve the community forests in the area, granted to them as per the provisions in Section 3 of Forest Rights Act, 2006.
- NGT highlighted that the lack of coordination between the forest department and the revenue department lead to the problem of encroachment.
- The grassland was first declared a "protected forest" in May 1955, using the nomenclature of the Indian Forest Act, 1927.
- Since then, the actual transfer of the land from the Revenue department to the Forest department has not been completed.

### **5.Merging of district central co-op banks with state ones**

The Reserve Bank will consider **amalgamation of District Central Co-operative Banks (DCCBs) with State Cooperative Banks (StCBs)** subject to various conditions, including that a proposal should be made by the state government concerned.

### Highlights of the merger:

- The **Banking Regulation (Amendment) Act, 2020** has been notified for the StCBs and DCCBs with effect from April 1, 2021.
- Amalgamation of such banks need to be **sanctioned by the Reserve Bank of India**.
- **RBI has come out with the guidelines** after a few state governments approached it for amalgamation of DCCBs with StCBs as a two-tier Short-term Co-operative Credit Structure (STCCS).

### Guidelines issued for the merger:

- RBI will consider proposals for amalgamation "**when the state government of the state makes a proposal to amalgamate** one or more DCCB/s in the state with the StCB after conducting a detailed study of the legal framework".
- Besides, **there should be an additional capital infusion strategy**, assurance regarding financial support if required, projected business model with clear profitability and proposed governance model for the amalgamated bank.
- The scheme of amalgamation has to be **approved by the requisite majority of shareholders**.
- **NABARD has to examine and recommend** the proposal of the state government.
- The sanction/ approval will be a **two-stage process**.
  1. In the first stage, an 'in-principle' approval will be accorded subject to fulfilment of certain conditions, following which the processes for amalgamation may be initiated by all concerned.
  2. After completion of the first stage, NABARD and RBI may be approached for final approval along with compliance report.
- As a result of share swap ratio based on net worth, shareholders of some DCCBs cannot be allotted any shares, then the state government should infuse sufficient capital in such lenders to ensure that the shareholders are allotted at least one share each.

### Co-operative banks:

- Co-operative banks are **financial entities** established on a co-operative basis and **belonging to their members**. This means that the **customers of a co-operative bank are also its owners**.
- These banks provide a wide range of regular banking and financial services.
- The co-operative banks in India are divided into two categories – **urban and rural**.
- Rural cooperative credit institutions could either be short-term or long-term in nature.

- Short-term cooperative credit institutions are further sub-divided into State Co-operative Banks, District Central Co-operative Banks and Primary Agricultural Credit Societies.
- Long-term institutions are either State Cooperative Agriculture and Rural Development Banks (SCARDBs) or Primary Cooperative Agriculture and Rural Development Banks (PCARDBs).
- Urban Co-operative Banks (UBBs) are either scheduled or non-scheduled. Scheduled and non-scheduled UCBs are again of two kinds- multi-state and those operating in single state

## 6. Recycling Carbon Technology

A Bangalore-based startup has received the National Award 2021 for developing efficient catalysts and methodologies for the conversion of CO<sub>2</sub> to methanol and other chemicals.

### Carbon Recycling

- It has led to the improvisation of process engineering to enhance the production of chemicals and fuels from anthropogenic CO<sub>2</sub>.
- It has integrated multiple components involved in the CCUS (Carbon capture, utilization, and sequestration) to develop a complete solution for the environmental issues due to global warming.
- The current capacity of CO<sub>2</sub> conversion is 300 kg per day, which can be scaled up to several 100 tons on an industrial scale.

### What is CCUS?

- Carbon Capture, Utilization, and Storage (CCUS) encompass methods and technologies to remove CO<sub>2</sub> from the flue gas and from the atmosphere.
- CCUS involves multiple aspects that need to be in sync for the successful removal or capture of CO<sub>2</sub> from the flue gas or the atmosphere, followed by utilization and storage.
- Carbon capture involves the development of sorbents that can effectively bind to the CO<sub>2</sub> present in flue gas or the atmosphere, which is expensive.
- In addition, there has been a considerable debate about the fate of captured and compressed CO<sub>2</sub>.

## Prelims Practice Questions

1. With reference to MCA 21, consider the following statements:

1. It is an online portal managed by the Ministry of Commerce and Industry.
2. It has made all company related information accessible to the general public.

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 : B**

### Explanation

- MCA21 is the online portal of the **Ministry of Corporate Affairs (MCA)**. Hence, **statement 1 is not correct.**
- MCA 21 has been part of Mission Mode projects of the Government of India.
- MCA21 has made all company related information accessible to various stakeholders and **the general public. Hence, statement 2 is correct.**
- Recently, the government launched the first phase of the latest update to its digital corporate compliance portal, **Ministry of Corporate Affairs (MCA) 21 Version 3.0.**
  - It will help in improving **Ease of Doing Business in India.** India ranked 63rd out of 190 countries in Ease Doing Business 2020: World Bank Report.
  - MCA21 Version 3.0 is part of the 2021 Budget announcement.

2. Which of the following can help in Carbon Sequestration?

1. Dumping of Iron in the upper ocean
2. Crop Rotation
3. Deep sea fishing

**Options:**

- a. 2 only  
b. 1 and 3 only  
c. 1 and 2 only

d. None of the above

**Answer: c**

**Explanation:**

- Dumping of Iron in the upper ocean leads to phytoplankton bloom which is known as Iron Fertilization. The phytoplankton uses carbon dioxide in the air and converts it to carbohydrates. This helps in carbon sequestration.
- The organic content in the soil increases due to crop rotation fostering carbon sequestration.
- The animal and plant material are deposited in deep sea are a part of the ocean food web. The carbon thus sequestered in the deep sea is removed during deep sea fishing. This does not facilitate carbon sequestration.

**3. The search committee involved in making recommendation for the appointment of the Central Bureau of Investigation (CBI) director comprises:**

1. Chief Justice of India
2. Leader of Opposition/Leader of the largest opposition party
3. Central Vigilance Commissioner
4. Home Secretary
5. Prime Minister

**Options:**

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

**Answer: c**

**Explanation:**

- CBI Director is appointed as per the Lokpal Act.
- The search committee that recommends the name of CBI director to be appointed, to the centre comprises the Prime Minister as the chairperson, the Chief Justice of India and the Leader of Opposition.
  - In the absence of the Leader of Opposition, the Leader of the largest opposition party.

4. The GI tagged products such as *Jardalu mango*, *Katarni Rice* and *Magahi Paan* belongs to which of the following states?

- a. Bihar
- b. Maharashtra
- c. Uttar Pradesh
- d. Madhya Pradesh

**Answer : a**

**Explanation:**

- In a major boost to export of GI certified products, season's first consignment of Shahi Litchi from Bihar was recently exported to United Kingdom by air route.

**Shahi Litchi**

- India is the second largest producer of litchi (Litchi chin) in the world, after China.
- The translucent, flavoured aril or edible flesh of the litchi is popular as a table fruit in India, while in China and Japan it is preferred in dried or canned form.
- Bihar tops in terms of production of litchi.
- Because of short-shelf life of litchi, there is need to explore exports opportunities for the processed and value-added products.
- It was the fourth agricultural products to get GI certification from Bihar in 2018, after *Jardalu mango*, *Katarni Rice* and *Magahi Paan*.
- GI registration for *Shahi Litchi* is held with the Muzaffarpur-based Litchi Growers Association of Bihar.
- Muzzafarpur, Vaishali, Samastipur, Champaran, Begusarai districts and adjoining areas of Bihar have favorable climate for growing Shahi Litchi.

5. Which of the following is/are fungal infections?

1. Mucormycosis
2. Cryptococcus
3. Histoplasmosis
4. Candida

**Options:**

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

**Answer: d**

**Explanation:**

Mucormycosis, candida, aspergillosis, cryptococcus, histoplasmosis and coccidioidomycosis are all fungal infections.

**6. Consider the following statements:**

1. In tropical regions, Zika virus disease is transmitted by the same mosquito that transmits dengue.
2. Sexual transmission of Zika virus disease is possible.

**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: c**

**Explanation:**

- In tropical regions, Zika virus disease is transmitted by the *Aedes aegypti* mosquito - the same mosquito that transmits dengue, yellow fever and chikungunya.
- Zika virus is also transmitted through sexual contact, transfusion of blood, during organ transplantation and from mother to foetus during pregnancy.



## **Mains Practice Questions**

**1Q. Examine the reasons and impact of 'devi-dasi' dichotomy prevalent in Indian society. (250 words)**

### **Approach**

- Briefly define the idea/dichotomy of devi/dasi concept.
- Locate the cultural, political, social and economic reasons behind genesis and continuity of this idea. Include examples to substantiate.
- Elaborate with impact with its broad ramification on Indian society
- Conclude in brief with focus on this idea's irrelevance in modern society and way forward.

**2Q. PM-KISAN is aimed at boosting rural consumption and helping poor farmers recover from distress. Examine the challenges of PM-KISAN in this context. (250 words)**

### **Approach**

- Introduce by mentioning the situation of farm distress and the need for schemes like PM-KISAN.
- Give details of PM-KISAN and how it aims to improve farmer's condition.
- Mention the challenges in rolling out PM-KISAN.
- Conclude by giving suggestions to improve its functioning.