

www.vishnuias.com



OCTOBER

21.10.2021

CURRENT AFFAIRS

A MAGAZINE FOR CIVIL SERVICES PREPARATION

JOIN OUR TELEGRAM: <https://t.me/vishnuiasmentor>

Articles of the day
THE HINDU & INDIAN EXPRESS

UPSC

General Studies

Test Series

Online &
Offline
classes

One-Stop
Solution

Free daily
materials

GS 2 : Polity, Governance, International Relations

1. Carbon Markets Conundrum at COP26

In News : The success of COP26 at Glasgow, that will take place from 31 October to 12 November 2021, depends to a great extent on the conclusion of carbon markets discussions

- Article 6 of the Paris Agreement introduces provisions for using international carbon markets to facilitate fulfilment of Nationally Determined Contributions (NDCs) by countries.

Why Carbon Markets in significant for India?

- Developing countries, particularly India, China and Brazil, gained significantly from the carbon market under the **Clean Development Mechanism (CDM) of the Kyoto Protocol**.
- India registered 1,703 projects under the CDM which is the **second highest** in the world. Total carbon credits known as Certified Emission Reductions (CERs) issued for these projects are around 255 million amounting to **U.S.\$2.55 billion**.
- Therefore, logically, India has a lot to gain from a thriving carbon market. However, with the ratification of the Paris Agreement, the rules of the game have changed.
- Unlike the Kyoto Protocol, now **even developing countries are required to have mitigation targets**.
- Developing countries are faced with a **dilemma of either selling** their carbon credits in return for lucrative foreign investment flows or use these credits to achieve their own mitigation targets.
- This has made Article 6 a highly sensitive issue that requires careful balancing of interests and expectations.
- While over 50% of the countries have communicated their intention of using market mechanisms to achieve NDC targets, India is not one of them as it aims to rely on domestic mitigation efforts to meet its NDC goals.
- It is the developed countries that would rely more on market mechanisms for achieving their climate targets as they would be comparatively low-cost options.

What are the critical issues with Article 6 of Paris Agreement?

The three critical issues that would be hotly debated in Article 6 negotiating rooms are Clean Development Mechanism (CDM) Transition, Accounting rules and Share of Proceeds to the Adaptation Fund. Let us examine them one by one.

CDM transition:

- The Clean Development Mechanism (CDM) projects have gone through due diligence and **credits have been issued under UNFCCC oversight**. Therefore, the Article 6 mechanism should honour the previous decisions
- However, some countries have cast doubts on the **environmental integrity of these credits** and while there is greater acceptance for transition of projects/activities, the same is not the case for transition of credits.
- If the decision regarding transition of CDM is not favourable, it could lead to a loss of billions of dollars worth of potential revenue to India alone. This can result in the formation of the new supervisory body under the Paris Agreement that can re-examine the validity and rigour of such credits.

Accounting rules:

- Article 6.4 mechanism is meant to incentivise the private sector and public entities to undertake mitigation activities for sustainable development.
- Under this mechanism, a country can purchase emission reductions from public and private entities of the host country and use it to meet its NDC targets.
- However, this **does not automatically imply that emission reductions transferred from a host country** be adjusted against its NDC targets.
- It must be appreciated that **these reductions represent additional efforts of the private sector or public entities** to mitigate greenhouse gas emissions, and in fact raise global climate ambition.
- This is also in line with the provision of Article 6.5 of the Paris Agreement wherein the host country is not required to undertake corresponding adjustment for the projects outside its NDC.
- Therefore, such efforts will be additional to what have been committed in the NDC.
- Robust accounting will ensure that there will be no double-counting of emission reductions.

Share of Proceeds (SOP) to the Adaptation Fund:

- For developing countries, adaptation is a necessity.
- However, it remains severely underfunded compared to financing for mitigation activities.

- While developing countries emphasise that the SOP must be uniformly applied to Articles 6.2 and 6.4 to fund adaptation, developed countries want to restrict its application to Article 6.4.
- This would disincentivise the Article 6.4 mechanism and limit voluntary cooperation to the cooperative approaches under Article 6.2 favoured by developed countries.

Conclusion

- In a way, carbon markets allow developed countries to keep emitting greenhouse gases while developing countries benefit from the revenue generated from the sale of their carbon credits.
- Central to the discussions on Article 6 is equitable sharing of carbon and developmental space. Climate justice demands that developing countries get access to their fair share of global carbon space.
- As developing countries are nudged to take greater mitigation responsibilities, a facilitative carbon market mechanism that respects the principles enshrined in UNFCCC would greatly help accelerate their transition to low carbon development pathway.

2. Can't outgoing CBI chief continue, asks court

In News :

The Supreme Court has asked the Union Government to respond whether it can, under “exceptional circumstances”, continue with the outgoing Central Bureau of Investigation (CBI) Director rather than appointing an Acting chief.

- The government has failed to appoint the Director of the CBI on the expiry of the term of the last incumbent.

Issue:

- A petition has been filed by NGO Common Cause about how the law does not permit the Government to issue executive orders on its own, appointing interim CBI Directors.
- The petition had said that an interim appointment through an executive order was not envisaged in the statutory scheme.
- It is argued that such manoeuvres would hamper the functional autonomy of the elite probe agency that investigated several sensitive cases in the country.

Appointment of the CBI Director:

- The CBI draws its legality from the Delhi Special Police Establishment Act (DSPE) – 1946. Before the establishment of CBI, there was the Special Police Establishment. It was India’s first agency to investigate corruption, set up in 1946 by the British.
- In 1963, the Home Ministry changed its name to the Central Bureau of Investigation and expanded its power. But, it is still governed by the 1946 Act.
- Before the Lokpal Act was legislated, the CBI Director was appointed by the DSPE Act. Now, the Lokpal Act governs the appointment of the CBI director.
- A search committee comprising of the Prime Minister as the chairperson, the Chief Justice of India (CJI) and the Leader of Opposition recommends the names.
- It begins with the Home Ministry preparing a list of IPS officers, who are eligible for the post on the basis of their seniority and experience in the field of probe.
- Department of Personnel prepares the final list on the basis of “seniority, integrity and experience in the investigation of anti-corruption cases”.
- The final list is examined by the search committee and a recommendation is sent to the government for the appointment of the CBI Director.

3. Kushinagar now hub of Buddhist tourist circuit

In News

The Prime Minister has inaugurated the Kushinagar International Airport in Uttar Pradesh, which will help connect key Buddhist pilgrimage sites. Diplomats from 12 countries where Buddhism is practised, including Mongolia, Myanmar, Vietnam, Cambodia, Thailand, Bhutan, Republic of Korea, Nepal and Japan, were also present.

- Kushinagar is the centre of the Buddhist circuit, which consists of pilgrimage sites at Lumbini, Sarnath and Gaya.
- Buddhist pilgrims consider Kushinagar a sacred site where, they believe, Gautama Buddha delivered his last sermon and attained ‘Mahaparinirvana’ or salvation.
 - It is believed to be the final resting place of Gautam Buddha.

Buddhist Circuit:

- The Buddhist circuit is a route that follows in the footsteps of the Buddha from Lumbini in Nepal where he was born, through Bihar in India

where he attained enlightenment, to Sarnath and Kushinagar in Uttar Pradesh in India, where he gave his first teachings and his final resting place.

Buddhist Sites:

- **Lumbini, Nepal** – Siddhartha Gautama's (Buddha) birthplace.
- **Kapilavastu, Uttar Pradesh** – The place where Gautama Buddha spent his early years as Siddhartha.
- **Bodh Gaya, Bihar** – It is the place where Gautama Buddha attained Enlightenment.
- **Sarnath, Varanasi, Uttar Pradesh** – It is the place where Buddha gave his first sermon. This was his first teaching after having attained enlightenment.
- **Rajgir, Bihar** – This is where Buddha lived and taught. He preached his two most famous sermons here.
- **Kausambi, Uttar Pradesh** – Kausambi is the place where Lord Buddha stayed and preached in the sixth and ninth years of his attaining enlightenment.
- **Shravasti, Uttar Pradesh** – Buddha spent 24 Chaturmasas/rainy seasons here.
- **Vaishali, Bihar** – The place where Gautama Buddha held his last sermon.
- **Kushinagar, Uttar Pradesh** – The place where Gautama Buddha attained Parinirvana. Parinirvana is commonly used to refer to nirvana-after-death, which occurs upon the death of someone who has attained nirvana during his or her lifetime.

4. Pandemic fuelled rise in child sexual abuse online: report

In News

The Global Threat Assessment report 2021 has been launched by WeProtect Global Alliance.

- WeProtect Global Alliance is a global movement of more than 200 governments, private sector companies and civil society organisations working together to transform the global response to child sexual exploitation and abuse online.

Key Findings:

- COVID-19 created a perfect storm of conditions that fuelled a rise in child sexual exploitation and abuse across the globe.
- COVID-19 had contributed to a significant spike in child sexual exploitation and abuse online.
- In the past two years, the reporting of child sexual exploitation and online abuse has reached its highest level.

- The rise in child 'self-generated' sexual material is another trend that challenges the existing response.
 - The Internet Watch Foundation observed a 77% increase in child 'self-generated' sexual material from 2019 to 2020.

The report calls for prioritising prevention activities against abuse, creating safe online environments for children, besides calling on all with a role to protect children to work together to improve the response.

GS 3 : Economy, Science and Technology, Environment

5. The outlines of a national security policy

Context

National security concepts have, in the two decades of the 21st century, undergone fundamental changes. Cyberwarfare has vastly reduced the deterrent value of conventional deterrents.

Emergence of cyberwarfare

- In the 21st century, after cybertechnology enters as an important variable in nations' defence policies.
- Geographical land size or GDP size will be irrelevant in war-making capacity or deterrence.
- These fundamental changes are entirely due to the earlier 20th century innovations in cybertechnology and software developments.
- Drones, robots, satellites and advanced computers as weapons are already in use.
- Some examples of further innovations are artificial intelligence and nanotechnology.
- Tracking those cyber warfare threat will need a new national security policy.
- By credible accounts, China, recently, publicly cautioned Indians to sit up and take notice by using cybertechnology to shut down Mumbai's electric supply in populated areas of the city, for a few hours.

Four dimensions of national security policy

- **Objectives:** the objective of the National Security Policy in the 21st century is to define what assets are required to be defended, the identity of opponents.

- Although the novel coronavirus is perhaps accidental, it has completely destabilised peoples globally and their governments in all nations of the world over.
- This is a preview of the **kinds of threats that await us in the coming decades** which a national security policy will have to address by choosing a nation's priorities.
- **Priorities:** National security priorities will require new departments for supporting several frontiers of innovation and technologies such as hydrogen fuel cells, desalination of seawater, thorium for nuclear technology, anti-computer viruses, and new immunity-creating medicines.
- This focus on a new priority will require **compulsory science and mathematics education**, especially in applications for analytical subjects.
- **Strategy:** The strategy required for this new national security policy will be to anticipate our enemies in many dimensions and by demonstrative but limited pre-emptive strikes by developing a **strategy of deterrence of the enemy**.
- For India, it will be the China cyber capability factor which is the new threat for which it has to devise a new strategy.
- **Resource mobilisation:** The macroeconomics of resource mobilisation depends on whether a nation has 'demand' as an economic deficit or not.
- If demand for a commodity or service is in deficit to clear the market of the available supply of the same, then liberal printing of currency and placing it in the hands of consumers is recommended for the economy to recover the demand-supply parity.
- A way to increase demand is by lowering the interest rate on bank loans or raising the rates in fixed deposits which will enable banks to obtain liquidity and lend liberally for enhancing investment for production.
- If it is 'supply' that is short or in deficit compared to demand, then special measures are required to incentivise to encourage an increase in supply.

Conclusion

National security at its root in the 21st century will depend on mind-boggling skills in the four dimensions mentioned above.

6. India more vulnerable to heat extremes: Lancet report

In News - The Lancet Countdown on Health and Climate Change' was recently launched.

- It is a flagship report of the medical journal The Lancet.
- It provides periodic updates on the scientific literature on the relationship between climate change and public health.

- The Lancet Countdown's sixth annual report tracks 44 indicators of health impacts that are directly linked to climate change.
- It shows key trends are getting worse and exacerbating already existing health and social inequities.

What are its key findings?

- **India's vulnerability:** India has become 15% more vulnerable to extremes of heat than in 1990.
- **Senior citizens:** Chinese, Indian, American, Japanese and Indonesian senior citizens were the most affected.
- **Loss of Work hours:** 295 billion hours of potential work were lost across the globe in 2020 due to heat exposure.
- **Most affected developing countries:** Pakistan, Bangladesh and India had the greatest losses of the working hours in their group.
 - These are the most populous countries in the medium-HDI (Human Development Index) group.
- **Heat-related mortality:** Between 2018 and 2019, India and Brazil had the biggest absolute increase in heat-related mortality.
- **Economic loss:** The economic losses of climate-related extreme events were three times higher in medium-HDI countries than they are in very high HDI countries.
 - South-East Asia was the only region with increasing air pollution mortality costs between 2015 and 2019, relative to GDP
- **Increase in wildfires:** Populations of 134 countries have experienced an increase in exposure to wildfires.
- **Widespread drought:** Drought is more widespread than ever before.

7. High oil prices

Context India has warned that high oil prices will undermine global economic recovery.

- It has pushed Saudi Arabia and other OPEC nations to work towards affordable and reliable supplies.
- Petrol and diesel prices have hit record highs across India after continuous price increases since May.

Background

- Global oil prices crashed to \$19 per barrel in April 2020 as demand reduced with most nations imposing lockdowns to control the spread of the novel coronavirus.
- Demand recovered this year as vaccination against the infection revived economies worldwide.
- International benchmark Brent crude has since rallied to \$84 per barrel.
- This had made fuel expensive and was instilling fears of inflation.
- While the world had begun the transition towards cleaner fuels such as electric-powered vehicles and hydrogen, most nations were still dependent on oil to fuel their economies. And high oil prices would hurt the recovery in demand.

India and the oil

- India's oil import bill had climbed from \$8.8 billion in June 2020 quarter to \$24 billion this year because of a spike in global oil prices.
- India imports almost two-thirds of its oil needs from West Asia.
- India is 85% dependent on imports to meet its oil needs.
- It is the world's third-largest energy consumer.

About Organization of the Petroleum Exporting Countries (OPEC)

- The OPEC is a permanent, intergovernmental organization,
- It was created at the Baghdad Conference in 1960, by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.
- **Aim:** It aims to manage the supply of oil in an effort to set the price of oil in the world market, in order to avoid fluctuations that might affect the economies of both producing and purchasing countries.
- It is headquartered in Vienna, Austria.
- OPEC membership is open to any country that is a substantial exporter of oil and which shares the ideals of the organization.
- **14 Member Countries:** Iran, Iraq, Kuwait, United Arab Emirates(UAE), Saudi Arabia, Algeria, Libya, Nigeria, Gabon, Equatorial Guinea, Republic of Congo, Angola, Ecuador and Venezuela.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. IMF and World Economic Outlook

Context: Recently, IMF unveiled its 2nd World Economic Outlook (WEO). The IMO comes out with the report twice every year – April and October – and also provides regular “updates” to it on other occasions.

Main takeaways from the report

- The central message was that the global economic recovery momentum had weakened due to pandemic induced disruptions. However, it is the **increasing inequality** among nations that IMF was most concerned about.
- Aggregate output for the advanced economy group is expected to regain its pre-pandemic level in 2022 while that of developing economy group (excluding China) is expected to remain 5.5 per cent below the pre-pandemic forecast in 2024.
- There are two key reasons for the economic divergences: large disparities in vaccine access, and differences in policy support.
- The report also points out that the employment growth likely to lag the output recovery. Employment around the world remains below its pre-pandemic levels, due to negative output gaps, worker fears of infection, automation in some sectors, unemployment benefits helping to cushion income losses.

India

- As far as GDP is concerned, India’s growth rate hasn’t been revised downwards.
- However, the IMF has projected on employment – that the recovery in unemployment is lagging the recovery in output (or GDP)
- Lack of adequate employment levels would drag down overall demand and thus stifle India’s growth momentum.
- Also, India is witnessing a K-shaped recovery. That means different sectors are recovering at significantly different rates. Some sectors such as the IT-services sectors have been practically unaffected by Covid, while e-commerce industry is doing “brilliantly”.

- Also, the informal economy is struggling to recover at the same pace as some of the more visible sectors.

2. Election of Deputy Speaker

There is an ongoing row in Uttar Pradesh Assembly over the election of Dy Speaker, the post which was lying vacant for two years.

Constitutional mandate for Deputy Speaker

- **Article 93** talks about the election of Speaker and Deputy Speaker for Lok Sabha and the case for their vacancies.
- **Article 178** contains the corresponding position for Speaker and Deputy Speaker of the Legislative Assembly of a state.

Is it mandatory under the Constitution to have a Deputy Speaker?

- Constitutional experts point out that both Articles 93 and 178 use the words “**shall**” and “**as soon as may be**”.
- This indicates that not only is the election of Speaker and Deputy Speaker mandatory, it **must be held at the earliest**.
- All that the Constitution says is the election **must be held as soon as possible**.

Time-frame and rules for their Election

- Generally speaking, the practice in both Lok Sabha and the state Legislative Assemblies has been to elect the **Speaker** during the **first session** of the new House.
- This usually falls on the **third day after oath-taking** and affirmations take place over the first two days.
- The election of the **Deputy Speaker** usually takes place in the **second session**, even though there is no bar on having this election too in the first session.
- However, the election of Deputy Speaker is generally not delayed beyond the second session without genuine and unavoidable constraints.

Rules for the elections

- In Lok Sabha, the election of Deputy Speaker is governed by the **Rules of Procedure and Conduct of Business** in Lok Sabha.

- According to the Rule, the election “**shall be held on such date as the Speaker may fix**”, and the Deputy Speaker is elected once a motion proposing his name is carried.
- There are similar provisions in the State Legislative Assembly Rules.

Their tenure

- Once elected, the Deputy Speaker usually continues in office **until the dissolution** of the House.
- Under Article 94 (Article 179 for state legislatures), the Speaker or Dy Speaker “shall vacate his office **if (S)he ceases to be a member of the House**”.
- They may also **resign (to each other)**, or “may be **removed by a resolution** of the House of the People passed by a majority of all the then members of the House”.

Do the powers of the Speaker extend to the Deputy Speaker as well?

- Article 95(1) says: While the office of Speaker is vacant, the duties of the office shall be performed by the Deputy Speaker.
- After the first Speaker, **G V Mavalankar** died, **M Ananth Ayyangar** officiated as Acting Speaker for the remaining tenure of the House and was then elected Speaker of the second Lok Sabha.
- There is another such incident.
- In general, the Deputy Speaker has the **same powers as the Speaker** when presiding over a sitting of the House.
- All references to the Speaker in the Rules are deemed to be references to the Deputy Speaker when he presides.
- It has been repeatedly held that **no appeal lies to the Speaker against a ruling given by the Deputy Speaker** or any person presiding over a sitting of the House in the absence of the Speaker.

3. Electing a Speaker, Deputy Speaker:

Context:

Hardoi MLA Nitin Agrawal has been elected Deputy Speaker of the Uttar Pradesh Assembly, which has barely five months left in its tenure.

How are they elected?

Article 93 for Lok Sabha and Article 178 for state Assemblies state that these Houses “shall, as soon as may be”, choose two of its members to be Speaker and Deputy Speaker.

- **In Lok Sabha and state legislatures**, the President/Governor sets a date for the election of the Speaker, and it is the Speaker who decides the date for the election of the Deputy Speaker.
- The legislators of the respective Houses vote to elect one among themselves to these offices.

Is it mandatory under the Constitution to have a Deputy Speaker?

Constitutional experts point out that both Articles 93 and 178 use the words “shall” and “as soon as may be” – indicating that not only is the election of Speaker and Deputy Speaker mandatory, it must be held at the earliest.

Their roles and functions:

1. The Speaker is “the principal spokesman of the House, he represents its collective voice and is its sole representative to the outside world”.
2. The Speaker presides over the House proceedings and joint sittings of the two Houses of Parliament.
3. It is the Speaker’s decision that determines whether a Bill is a Money Bill and therefore outside of the purview of the other House.
4. Usually, the Speaker comes from the ruling party. In the case of the Deputy Speaker of Lok Sabha, the position has varied over the years.
5. The constitution has tried to ensure the independence of Speaker by charging his salary on the consolidated Fund of India and the same is not subject to vote of Parliament.
6. While debating or during general discussion on a bill, the members of the parliament have to address only to the Speaker.

Tenure:

- Once elected, the Deputy Speaker usually continues in office until the dissolution of the House.

- Under Article 94 (Article 179 for state legislatures), the Speaker or Deputy Speaker “shall vacate his office if he ceases to be a member of the House of the People”.
- They may also resign (to each other), or “may be removed from office by a resolution of the House of the People passed by a majority of all the then members of the House”.

Powers of deputy speaker:

The Deputy Speaker has the same powers as the Speaker when presiding over a sitting of the House. All references to the Speaker in the Rules are deemed to be references to the Deputy Speaker when he presides.

States which have specified time-frame for holding the election:

The Constitution neither sets a time limit nor specifies the process for these elections. **It leaves it to the legislatures to decide how to hold these elections.**

For example, Haryana and Uttar Pradesh specify a time-frame.

In Haryana:

1. The election of the Speaker has to take place as soon as possible after the election. And then the Deputy Speaker is to be elected within seven more days.
2. The rules also specify that if a vacancy in these offices happens subsequently, then the election for these should occur within seven days of the legislature’s next session.

In Uttar Pradesh:

1. There is a 15-day limit for an election to the Speaker’s post if it falls vacant during the term of the Assembly.
2. In the case of the Deputy Speaker, the date for the first election is to be decided by the Speaker, and 30 days is given for filling subsequent vacancies.

GS 3 : Economy, Science and Technology, Environment

4. Extending BSF's powers won't resolve policing problems, security threats

Context

The Union home ministry's order to extend the jurisdiction of the Border Security Forces (BSF) has caused furore.

Justification for the order

- **Increased threats:** The Taliban's takeover in Afghanistan has revived serious threats of cross-border infiltration from Pakistan, while China, our other tense neighbour, has been increasingly aggressive over the past year.
- **Change in the jurisdiction:** The BSF's powers have not altered, **only its jurisdiction has changed from 15 to 50 kilometres** and that is for the purposes of uniformity.

Issues raised by the order

- **Lack of clarity:** That India is facing heightened security threats is undeniable.
- What is unclear is how the BSF's extended jurisdiction helps counter these threats.
- The recent drug seizures in Gujarat's Adani port were successfully conducted by the customs department and the Directorate of Revenue Intelligence – not by the BSF, despite their **jurisdiction depth of 80 kilometres in the state**.
- **No need for uniformity:** In the security context, arguments about **uniformity** are patently absurd.
- There is no uniformity between coastal smuggling in Gujarat, cross-border infiltration in Jammu and Kashmir, smuggling and drone drops in Punjab.
- **Risk of civilian resentment:** The order raises the risk of **civilian resentment**, even clashes, given that the BSF is not trained to operate in residential and/or market areas, it will also **undermine the state police forces' morale** even further.
- **Overstretching BSF:** The BSF is likely to be overstretched by its new tasks.
- Once again, **that could weaken** rather than strengthen the BSF's security capabilities.

Tackling illegal migration

- Curbing illegal migration requires **coordinated action** between India and its neighbours, first at the political and then at the security level.

- The administration's migration policies – the Citizenship Amendment Act, deporting Myanmar refugees even when they were locally welcomed, cancelling Afghan visas have made cooperation more difficult and impacting negatively on border security.
- To think that the BSF can plug what is a government-to-government policy gap is prone to failure.

Way forward

- **Coordination:** The underlying issue when it comes to tackling both smuggling and infiltration threats is **coordination between our security agencies**.
- **Police reform:** The state police forces have weakened, therefore, the solution lies in putting police reforms on an emergency footing, not in extending the BSF's jurisdiction.
- That we have a grave policing problem across India is undeniable.
- But the answer is not to write them off; it is to insulate them from political misuse while holding them accountable for rule of law lapses.
- Moreover, to strengthen police capabilities it is vital that other security forces **cooperate with local police forces**, not bypass them.
- The BSF has had a relatively good record of local police cooperation thus far.
- When it comes to cross-border infiltration, **intelligence is the key**.

Conclusion

Strengthening police capabilities, improving coordination between security agencies and cooperation with state law enforcement are needed to address these issues.

5. Punjab farmers create Bio-Enzymes from Kinnow

Some farmers in Punjab, especially in the Kinnow belt, have started making Bio-Enzymes (BEs) from this waste fruit – peel and 'D' grade, very small kinnows.

What is a Kinnow?

- The 'Kinnow' is a **high yield citrus fruit** cultivated extensively in the wider Punjab region of India and Pakistan.
- It is a year-long duration crop and the main **harvesting period is from November-end to March**.
- It looks **similar to orange** but is smaller in size.

Agricultural significance of Kinnows

- **Fallen fruit** is a major challenge for kinnow farmers in the state as one needs to dig up small pits to bury them, otherwise the fallen fruit rot and invite a fly attack on the healthy fruit still on the plants.
- But now, some farmers are using this waste kinnow to **improve the pH level and soil fertility** of their land by making BEs from this waste fruit.

What are Bio-Enzymes?

- Chemically, the Bio Enzymes are a **mixture of complex organic substances** such as proteins, salts and other materials that are by-products of the bacteria/yeast.
- They produced through **fermentation of organic waste** including various fruits, vegetable peels and flowers, by mixing in sugar, jaggery/molasses and water.
- BE's also have a lot of **usage in our daily lives**. They can be used as **natural cleansers**.

Benefits offered by BEs

- BEs have a lot of **good microbes** and one of the major methods which helps overall improvement of our ecology.
- It helps in **mitigating the imbalance** occurred due to **overuse of chemicals**, in our soil, air and water.
- In a state like Punjab where water table is depleting fast and water contamination is also major issue, BEs can bring the **soil back to life**.
- It helps in better water recharging and also **stops the contamination of water** by improving the health of soil.

6. What is the Lucy Mission

The NASA has launched Lucy, the spacecraft on a 12-year cruise to look back into the origins of the solar system through Trojans.

Lucy Mission

- Lucy will fly by eight Jupiter asteroids – seven Trojans and one main-belt asteroid – over the next 12 years.
- It is NASA's first single spacecraft mission in history to explore so many different asteroids.

- Lucy will run on solar power out to 850 million kilometers away from the Sun.
- This makes it the farthest-flung solar powered spacecraft ever, according to NASA.

Jupiter Trojan Asteroids

- Simply known as Trojans, they are a large group of asteroids that share Jupiter's orbit around the Sun.
- Thousands of such asteroids exist in a gravitationally stable space.
- The swarms lead and follow the planet Jupiter along its orbit around the Sun.

What exactly are Trojans?

- Lucy's Trojan destinations are trapped near Jupiter's Lagrange (L) points, which are gravitationally stable locations – it is where the gravity from the Sun and from Jupiter cancel each other out.
- This means their orbits are stable and the Trojans are trapped in the space between.
- This also means that asteroids are as far away from Jupiter as they are from the Sun.
- Jupiter's leading and trailing Lagrangian points (L4 and L5) have been stable over the age of the solar system.
- This means that their orbits have accumulated many, many asteroids.
- It makes sense to call a Trojan a co-orbital object, which moves around one of the two stable Lagrangian points.

When and how were they discovered?

- It took many a scientist to understand Trojans, and subsequently, name them so.
- A German astro-photographer in 1906 made an important discovery: An asteroid with a particularly unusual orbit. As Jupiter moved, this asteroid remained ahead of Jupiter.
- It was observed that the asteroid was nearly 60 degrees in front of Jupiter.

Lagrange's propositions

- This specific position of a peculiar behaviour was predicted by the Italian-French mathematician Joseph-Louis Lagrange over 100 years earlier.

- Lagrange had argued that if a small celestial body is placed at one of two stable points in a planet's orbit around the Sun (the L4 and L5), the asteroid would remain stationary from the planet's perspective.
- This is due to the combined gravitational forces of the planet and the Sun.
- Thus, Lagrange's prediction acquired credibility. More such asteroids were discovered over subsequent months in Jupiter's Lagrange point L5.

Behind the name: Lucy

- It is the fossil of a hominin that lived 3.2 million years ago.
- She is known to be one of the most famous pre-human fossil in history.
- Nearly 40 per cent of the fossilised skeleton of this hominin was discovered in 1974 by a team of paleoanthropologists led by Donald Johanson.
- The name was inspired from the famous Beatles song "Lucy in the Sky With Diamonds," which Johanson's team listened to at camp the night of their discovery.

7. Places in news: Mawsmai Cave

A micro snail species named *Georissa mawsmaiensis* has recently been discovered from Mawsmai, a limestone cave in Meghalaya, 170 years after the last such discovery was made.

Georissa mawsmaiensis

- *Georissa* is found in soil or subterranean habitats in lowland tropical forest as well as high altitude evergreen forests or on rock surfaces rich in calcium.
- The members of the *Georissa* genus are widely distributed across and reported from Africa, Asia, and the Pacific.
- However, they are confined to microhabitats consisting of limestone caves or karst landscapes formed by the dissolution of limestone.

About Mawsmai Cave

- The Mawsmai cave is situated in the small village of Mawsmai, around four kilometres from Cherrapunjee (Sohra) in the East Khasi Hills district of Meghalaya.
- It is located at an altitude of 1,195 metres above sea level and is indirectly influenced by the streams of the Kynshi river originating from the East Khasi Hills.

- The term 'Mawsmat' means 'Oath Stone' in the Khasi language. The Khasi people use the local term 'Krem' for the cave.
- It is famous for its fossils, some which can be spotted looking at the walls and formations inside.
- **The longest is Krem Liat Prah in the Jaintia Hills, which is 30,957 m (31 km approx.)**

Prelims Practice Questions

1. Consider the following statements:

1. The continent of Africa contributes least to global warming.
2. As per the World Meteorological Organisation (WMO), Africa's current glacial retreat rates are higher than the global average.

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

- Recently, a report from the World Meteorological Organisation (WMO) stated that Africa's rare glaciers will disappear in the next two decades due to climate change.
 - Their **current glacial retreat rates are higher than the global average**. If this continues, it will lead to total de-glaciation by the 2040s. Hence, **statement 1 is correct**.
- As per the report, Africa is the continent that **contributes least to global warming** yet it is **going to suffer the most**. Hence, **statement 2 is correct**.
 - While African nations contribute less than 4% of global greenhouse gas emissions, the report underscored the outsize impact that changes in the climate are having on the continent's 1.3 billion people.
- The last three mountain glaciers in Africa (Mount Kilimanjaro (Tanzania), Mount Kenya (Kenya) and the Ruwenzori Mountains (Uganda)) are receding at such a rapid pace that they could disappear within two decades.

2. Bhaskaravarman, the crowned ruler of Kamrupa kingdom, was the contemporary of

- a. Harshavardhana
- b. Akbar
- c. Ashoka
- d. Samudragupta

Answer: a

Explanation:

- Bhaskaravarman was the last of the Varman dynasty.
- He was perhaps the most illustrious of the kings of the medieval Kamarupa kingdom.
- He was a contemporary and political ally of northern Indian ruler Harshavardhana of Thanesar.

3. Which of the following are the parts of Atthamahathanani (Eight Great Places of Buddhist Heritage)?

1. Rajgir
2. Vaishali
3. Sravasti
4. Sankasya

Select the correct answer using the code given below:

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

Answer : D

Explanation

- The 'Buddha Path' also refers to the Eight Great Places of Buddhist Heritage (referred in Pali as Atthamahathanani). They are:
 - Lumbini (Nepal)- Buddha was born.

- Bodh Gaya (Bihar)- Attained enlightenment.
- Sarnath (Varanasi, U.P.)- First sermon.
- Kushinagar (Gorakhpur, U.P.)- Buddha died.
- **Rajgir (Bihar)**- Where the Lord tamed a mad elephant.
- **Vaishali (Bihar)**- Where a monkey offered honey to him.
- **Sravasti (U.P)**- The Lord took his seat on a thousand petaled lotus and created multiple representations of himself.
- **Sankasya (Farrukhabad, Uttar Pradesh)**- He descended from heaven.
- **Hence, option D is correct.**

4. With reference to the Global Food Security (GFS) Index, consider the following statements:

1. It measures the underlying drivers of food security.
2. It is released by FAO.
3. India is ranked at 71st position in this GFS index 2021.

Which of the above statements is/are correct?

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

Answer : A

Explanation

- **The Global Food Security (GFS) Index** measures the **underlying drivers of food security** based on the following factors:
 - Affordability
 - Availability
 - Quality and Safety
 - Natural Resources and Resilience
 - **Hence, statement 1 is correct.**
- The GFS Index was designed and constructed by **London-based Economist Impact** and is **sponsored by Corteva Agriscience**. **Hence, statement 2 is not correct**
- India held the **71st position** with an **overall score of 57.2 points** on the GFS Index 2021 of 113 countries. **Hence, statement 3 is correct.**

5. INSACOG, recently seen in the news, is

- a. ISRO's latest satellite to join the IRNSS navigation system
- b. CDAC's latest supercomputer focusing on cognitive learning
- c. Consortium of labs focusing on finding genome sequencing of SARS-CoV2
- d. Instantly rechargeable battery for electric cars

Answer: c

Explanation:

Indian SARS-CoV-2 Genomics Consortium (INSACOG) is a multi-lab agency set up by the Government of India for sequencing and analysing the genome data with respect to the SARS-CoV-2 virus.

6. Consider the following GM crops and choose the ones which are *not* legally allowed to be cultivated in India.

1. Rice
2. Brinjal
3. Cotton
4. Mustard

Options:-

- a. 1 & 2 only
- b. 1 & 4 only
- c. 1, 2 & 4 only
- d. All of the above

Answer: c

Explanation:

- GM Cotton is the only genetically modified crop legally allowed to be cultivated in India.
- GM Rice, GM Brinjal and GM Mustard do not have the legal approval to be cultivated in the country.

Mains Practice Questions

1. "The world is becoming an increasingly unsafe place and that means security must assume topmost priority." Discuss the statement in the light of the need of defence sector reforms in India. (250 words)

Approach

- Introduce by writing the challenging situation prevalent in the world especially in India's neighbourhood.
- Discuss the issues with the defence sector and thus, the need for reforms.
- Conclude by giving a way forward to these challenges.

2. "Financial inclusion is an essential tool in pursuit of social justice". In light of the given statement, examine the role of digital technology in furthering the cause of financial inclusion.(250 words)

Approach

- Write a few introductory lines on financial inclusion and social justice.
- Explain the role of digital technology in achieving financial inclusion.
- Mention the associated challenges.
- Conclude by Suggesting a way forward.

