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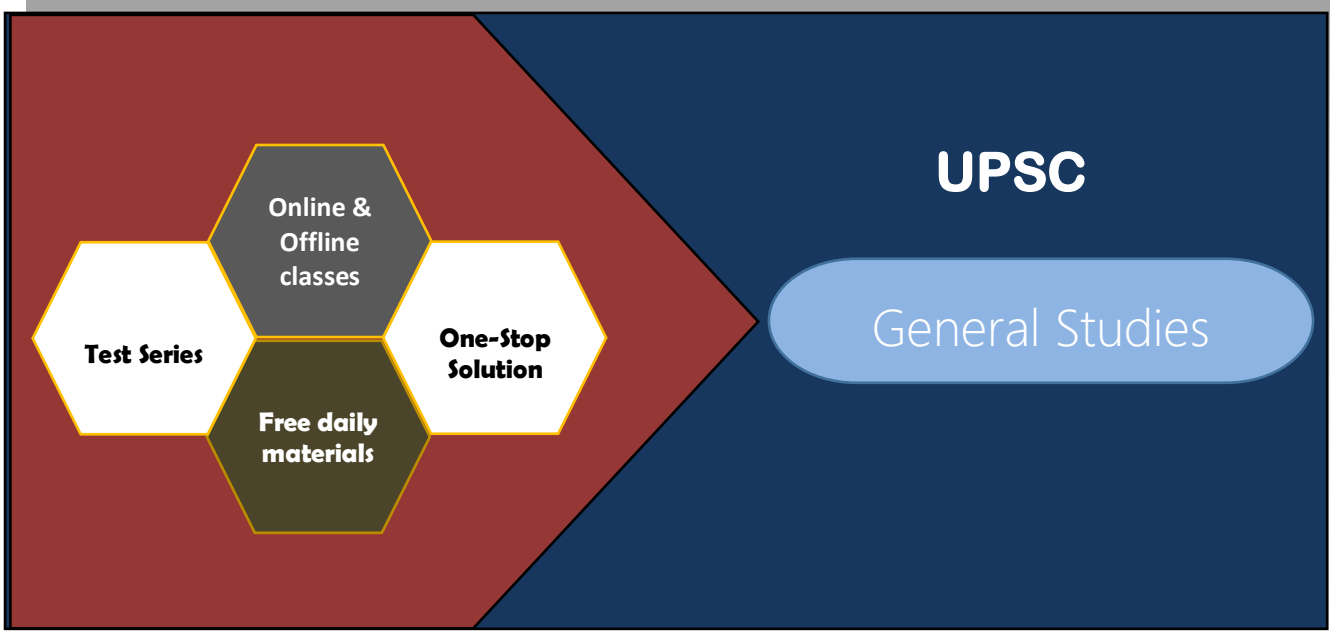
Articles of the day
THE HINDU & INDIAN EXPRESS



THE HINDU

GS 2 : Polity, Governance, International Relations

1. Chief Justice appointment cleared by Government

In News :

Recently, the Central Government cleared the appointment of Eight new Chief Justices for High Courts along with the transfer of five Chief Justices.

Appointment procedure of HC Judges:

- **Article 217**of the Constitution: It states that the Judge of a High Court shall be appointed by the President in consultation with the Chief Justice of India (CJI), the Governor of the State.
- In the case of appointment of a Judge other than the Chief Justice, the **Chief Justice of the High Court is consulted.**
- **Consultation Process:** High Court judges are recommended by a **Collegium** comprising the **CJI and two senior-most judges.**
- The proposal, however, is initiated by the Chief Justice of the High Court concerned in consultation with two senior-most colleagues.
- The recommendation is sent to the Chief Minister, who advises the Governor to send the proposal to the Union Law Minister.

Transfer procedure of HC Judges:

- **Article 222**of the Constitution makes provision for the transfer of a Judge (including Chief Justice) from one High Court to any other High Court. The initiation of the proposal for the transfer of a Judge should be made by the Chief Justice of India whose opinion in this regard is determinative.
- Consent of a Judge for his first or subsequent transfer would not be required.
- All transfers are to be made in public interest i.e., for promoting better administration of justice throughout the country.

Evolution of Collegium System:

- It is the system of appointment and transfer of judges that has evolved through judgments of the SC, but not by an Act of Parliament or by a provision of the Constitution.
    - **First Judges Case (1981):** It declared that the "primacy" of the Chief Justice of India's (CJI) recommendation on judicial appointments and

transfers can be refused by the President and consultation doesn't mean concurrence.
    - Thus, the ruling gave the Executive primacy over the Judiciary in judicial appointments for the next 12 years.
- **Second Judges Case (1993):** SC introduced the Collegium System, holding that consultation means concurrence.
    - It added that it was not the CJI's individual opinion, but an institutional opinion formed in consultation with the two senior-most judges in the SC.
- **Third Judges Case (1998):** SC on President's reference expanded the Collegium to a five-member body, comprising the CJI and four of his senior-most colleagues (for example for the transfer of HC judges).

Issues involved in appointment:

- **Cumbersome Process:**There are inordinate delays in the appointment of High Court judges and it leads to the pendency of cases.
- **Lack of Transparency:**There is no objective criteria for selection and people come to know about judges only after selection. It also promotes nepotism in the judiciary. The consultations of the Collegium are also not discussed in any public platform.
- **Instances of Politicisation:** In many cases, there is indication that due to the unfavorable judgments of certain judges the political executive hinders their appointments, elevation, or transfer. This reflects poorly on the concept of independence of the judiciary.
- **Improper Representation:**Certain sections of societies have higher representation whereas many vulnerable sections have nil representation.

Attempts of Reform:

- The attempt was made to replace the Collegium with a 'National Judicial Appointments Commission (NJAC)' in 2014 through the 99th Constitutional Amendment Act, 2014. However, the Constitutional Bench of the Supreme Court declared NJAC unconstitutional in 2015, citing that it violates the Basic Structure Doctrine of the Constitution on the ground that it posed a threat to the independence of the judiciary.

Way Forward

- It is high time to think of a permanent, independent body to institutionalize the process with adequate safeguards to preserve the judiciary's independence guaranteeing judicial primacy but not judicial exclusivity.

- It should ensure independence, reflect the diversity, demonstrate professional competence and integrity.
- Instead of selecting the number of judges required against a certain number of vacancies, the collegium must provide a panel of possible names to the President to appoint in order of preference and other valid criteria. Judiciary should balance accountability as well as independence provided by the Constitution.

2. Andhra Pradesh nabs sanders smugglers

- The Personnel of the Special Enforcement Bureau (SEB) arrested the persons involved in the smuggling of Red Sanders wood and seized 66 logs along with a container lorry and an SUV worth 60 lakh.

About Red Sanders/Red Sandalwood /Saunders Wood

- Found in southern Eastern Ghats mountain range of South India.
- This tree is valued for the rich red color of its wood. The wood is not aromatic.
- The tree is not to be confused with the aromatic Santalum sandalwood trees that grow natively in South India.
- Red sandalwood has been used for making the bridge and also the neck of the Japanese musical instrument Shamisen and in furniture in China for its porch appearance.

GS 3 : Economy, Science and Technology,Environment

3. Global warming phenomenon

In News :

The Nobel Prize for Physics for 2021 has been awarded to climatologists Syukuro Manabe and Klaus Hasselmann, and physicist Giorgio Parisi for their groundbreaking contributions in the understanding of complex physical systems.

Details:

- The Nobel
    - The Nobel Prize is being given to climatologists for the first time since its inception in 1901.
    - The prize-winning work done by the laureates are in different areas but they fall under the umbrella of complex systems, climate on the one hand, and spin liquids on the other and so are broadly linked to one another.
- Syukuro Manabe's Work
    - Syukuro Manabe and collaborators made pioneering attempts at modelling atmospheric warming due to the increase in carbon dioxide in the 1950s and 1960s.
    - Manabe's model pinned the quantitative impact of warming due to carbon dioxide and he estimated that a doubling of carbon dioxide would lead to a temperature rise of 2 degrees.
    - His model confirmed that the rise in temperature was due to the increase in carbon dioxide instead of the Sun's radiation.
- Klaus Hasselmann's Work
    - He built a stochastic climate model that connects climate and weather as he used a connection between the randomly varying weather patterns and inferred from these the signal of climate.
    - As per the information released by the Nobel Academy, Klaus Hasselmann later developed methods to identify the human fifingerprintt on climate change.
    - The models that he built carried information about warming due to solar radiation, greenhouse gases, and other causes, each of which could be separated.
- Giorgio Parisi's Work
    - Parisi was able to identify a structure to the replicas by a replica trick and describe it mathematically.
        - Replica trick is a mathematical technique in which many copies of the system i.e. replicas are processed at the same time to calculate meaningful quantities out of spin glasses.
    - This led to the method being used eventually to solve problems in the field of complex systems including not only physics but solving problems in mathematics, biology, neuroscience.

Significance:

- The works of the three scientists cover phenomenon that is diverse from the spans length scales ranging from centimetres to the size of the planet and the description of what goes on at a microscopic level.

- As there is a solid physics basis to climate science, their work would amplify the understanding of the complex physical system that has many interacting elements, and they often show chaotic or dynamic behaviour.

Inference:

- A comprehensive understanding of the complex physical system would throw light on its dynamic physical behaviours and would further associate with the solutions to the problems of Climate Science that mankind urgently needs.

Other Important Concepts:

- Green-house Effect
  - Green-house effect is the atmospheric absorption of some part of the outgoing radiation when the incoming short-wavelength radiation from the Sun is absorbed by the Earth and re-emitted outwards as long-wavelength radiation.
  - Though the greenhouse effect also has a positive impact as it keeps the surface of the earth warm and makes life possible. But the increase in the percentage of greenhouse gases in the atmosphere can rise the warming to a degree that is harmful to life.
  - A Swedish scientist Svante Arrhenius estimated around the close of the 19th century if the carbon dioxide in the atmosphere double, this would cause its temperature to increase by 5-6 degrees.
- Weather & Climate
  - Weather refers to the day-to-day variations in temperature and rainfall.
  - Climate describes long-time effects and also seasonal and average behaviour over a long time.

4. Himachal Pradesh getting less snow

In News :

- A recent study conducted jointly by the State Centre on Climate Change and Space Applications Centre (ISRO) Ahmedabad, using Advanced Wide Field Sensor (AWiFS) satellite data has revealed that all major river basins including Satluj, Ravi, Chenab, and Beas have witnessed an overall decrease of 18.5% in area under snow in 2020-21 winters in comparison to 2019-20.

Identifiable Causes of the loss of Snow:

Natural Cause

1. The prime reason is the changes in the global climate pattern which has led to the reduction in the precipitation trend.
2. The average temperature has also risen in the region faster than the peninsular region.
3. On average relatively more moisture is being carried towards the Himalayas. But there is a lack of conditions for sub-zero temperature, hence snowfall is declining as global warming has led to a rise in temperature.

Man-Made Cause

- Unsustainable rapid deforestation
- Unregulated construction activities
- Increase in air and soil pollution in the region.

Impact of Loss of Snow Cover

- In Himachal Pradesh, about one-third of the geographical area remains under thick snow cover during the winter season.
- The snow cover helps in controlling the accumulation and ablations patterns of the glaciated regions.
- Major rivers such as Chenab, Beas, Parvati, Baspa, Spiti, Ravi, Satluj and their perennial tributaries originating from the Himalayas depend upon the seasonal snow cover for their discharge dependability.
- The spatial distribution of snow ensures sustainable measurement of the hydrological table at the basin.

Recommendations:

- Developed countries with legacy emissions need to effect deep emission cuts. Developing nations should also commit themselves to steeper emissions cuts based on the promise of support from developed countries.
- The developing countries should be supported adequately in their climate action endeavors in the form of easy access to low carbon technologies through technology transfer and adequate funding for mitigation and adaptation.

5. Spraying Solution to stem stubble burning

In News :

- A Bengaluru-based agritech firm "nurture.farm" is providing technology to aid farmers to spray decomposers over an unprecedented 5 lakh acres. This would reduce the need for stubble burning in the regions, which have been consistently undertaking stubble burning after the harvest.

Boom Sprayer: How it works?

- The boom sprayer looks like a tractor and its definitive features are two 20-feet booms that spread out like outstretched wings. On them are equally spaced nozzles that spray bio-decomposers on the freshly harvested rice field.
- The decomposers are a powder mixed in the water meant to accelerate the process of turning rice stubble into compost.
- With the boom sprayer, an acre can be sprayed in 7 minutes whereas manually it takes half a day.

Issues associated:

- Data from the National Aeronautics and Space Administration suggests that there is no discernible difference in the number of fires this year when compared to the same time last year.
- There is heavy rainfall in September over north India which has already led to the delayed harvesting and reduced the time available for sowing the winter wheat. This would lead to more potential fires to clear the fields quickly.
- The wind direction and the smoke residue in the air will be more apparent in Delhi's air quality further worsening the same.

Recent Measures towards curbing Stubble Burning

- The Central Government outlined claims by several State governments to address crop burning.
- For about 25,000 farmers in Punjab and Haryana, the decomposer spraying will be free.
- Haryana has reportedly allocated ₹200 crores to disincentivize farmers from crop burning and Uttar Pradesh will be spraying a decomposer using cow dung manure over 1 million acres.

6. Green Pacts inked at India, Denmark Summit

In News :

- India and Denmark signed two agreements on research in climate change, while another MoU on setting up a "green hydrogen" electrolyzer plant.
- This was the first summit-level visit to India since the COVID pandemic and the first State visit by a Danish leader since a bilateral freeze on ties a decade ago.
- This is in continuance to the joint declaration of the "Green Strategic Partnership" that India and Denmark forged after a virtual summit between PMs Modi and Frederiksen in September 2020.

Areas of Cooperation:

- There are agreements to pursue joint cooperation in the field of health technology and agriculture. Joint ventures on food safety, cold chains, food processing, and water management are to be finalized.
- Agreement between the Council of Scientific and Industrial Research and the Geological Survey of Denmark to conduct groundwater mapping.
- MoU between the Indian Institute of Science and Danfoss Industries to set up a research center on carbon-based cooling systems.
- The commercial MoU between Reliance Industries Limited and Stiesdal Fuel Technologies will work on the development of a "Hydrogen Electrolyser" for zero-carbon hydrogen to be manufactured in India.
- There are plans to build four factories for the production of solar PV modules, electrolyzers, fuel cells, and storage batteries in Gujarat.
- The two leaders also discussed the situation in Afghanistan and shared common concerns on terrorism, the rights of women and minorities, and the need for an inclusive government.

Significance of Green Hydrogen

- **Environmental**: Reduction of Carbon Footprint, Achievement of INDC targets, net-zero emissions by 2050, and limit global temperature rises to 1.5C.
- **Profitable**: Could supply up to 25% of the world's energy needs by 2050 and become a US$10 trillion addressable market by 2050.
- Production costs have fallen by 40% since 2015 and are expected to fall by a further 40% through 2025.
- Potential demand for imported hydrogen in China, Japan, South Korea, and Singapore could reach $9.5 billion by 2030.
- Energy Security can be ensured in a sustainable manner.
- Reduce India's dependency on crude oil, helping stabilize the Current Account Deficit.

Other Measures taken by India

- National Hydrogen Energy Mission was formally announced in the Union budget for 2020-21.
- India also plans to extend the production-linked incentive (PLI) scheme for manufacturing electrolyzers, which are used for producing green hydrogen.
- India is scheduled to host a two-day summit on green hydrogen, with countries like Brazil, Russia, China, and South Africa set to take part in it

7. Malabar Exercise Phase II

- The Malabar Exercise is among 4 participants: the Indian Navy, US Navy (USN), Japanese Maritime Self Defence Force (JMSDF), and the Royal Australian Navy (RAN).
- Phase- II is expected to commence next week.
- The Phase-I of Malabar, also its 25th edition, was hosted by the U.S. and held off Guam from August 26-29.
- The Malabar Exercise provides an opportunity for participating navies to derive benefit from each other's expertise and experiences.
- This is the first military engagement of the quadrilateral nations since the unveiling of the AUKUS coalition.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. Minimum Threshold Parameters

Department of Food and Public Distribution has developed an integrated ecosystem for the integration of procurement portals of all state governments by associating **Minimum Threshold Parameters** (MTPs) to procurements for monitoring and strategic decision making.

Key Highlights:

- The integration began with the initiative of KMS (Knowledge Management Systems) 2021-22 in October, 2021.

Need for the move:

- **Due to variations in the procurement systems** of Food Corporation of India and State Governments, there emerge both systemic and implementation challenges for implementing the schemes of Centre Government.
    - This can lead to avoidable delays in the release of funds for Minimum Support Price (MSP) to States.

- **Standardization of the operations** are essential in achieving greater levels of transparency and efficiency in procurement operations, which ultimately lead to fulfilling the goals of National Food Security Act.

Significance:

- To enable farmers to **get the best value** for their produce and avoid resorting to distress sale.
- To **avoid middlemen** in procurement process.
- For **better management of procurement operations** by the State agencies and FCI (Food corporation of India) with the limited resources.
- For **automation** and **standardization** of procurement operations and facilitate storage in godowns.

Minimum Threshold Parameters:

- These are necessary parameters to **ensure uniformity** and **interoperability** in all procurement portals for the proposed Central Foodgrains Procurement Portal to function efficiently.
- The **parameters** are:
    - Online Registration of Farmers/Sharecroppers.
    - Integration of registered farmer data with State's land record portal.
    - Integration of Digitized Mandi/Procurement centre operations.
    - Online payment through Expenditure Advance Transfer (EAT) module of PFMS (Public financial management System).
    - Wheat delivery management.

MSP (Minimum Support Price) Mechanism:

- MSP is the rate at which Government of India (GoI) **purchases crops** from farmers.
- MSP was introduced in the mid-sixties when India was **food-deficit.**
    - The government was keen to boost **domestic production** and **crop diversification** through the Green Revolution technologies.
    - The farmers were reluctant to invest in input-intensive-high yield varieties unless guaranteed a minimum price for produce.

- **Mechanism:**
  - Crops offered by farmers, within the stipulated period & conforming to the specifications prescribed by GoI are purchased at MSP by the State Government agencies and Food Corporation of India (FCI) for Central Pool.
  - If producer/farmer gets better price in comparison to MSP, they are free to sell their produce in open market i.e., to private trader/ anyone.
- MSP is set by the Central Government on the recommendations of the **Commission for Agricultural Costs and Prices** (CACP). It is **fixed prior** to the sowing season and is not altered.
- In 2021, Government has fixed MSPs for **23** crops:
  - 7 kinds of cereal (Paddy, Wheat, Maize, Bajra, Jowar, Ragi and Barley)
  - 5 pulses (Chana, Arhar/Tur, Urad, Moong and Masur)
  - 7 oilseeds (Rapeseed-Mustard, Groundnut, Soybean, Sunflower, Sesamum, Safflower and Nigerseed)
  - 4 commercial crops (Cotton, Sugarcane, Copra and Raw Jute).

2. Terrestrial Water Loss in India

According to **2021 State of Climate Services report** released by the World Meteorological Organization (WMO), India has recorded the **highest loss** in terrestrial water storage after Greenland and Antarctica.

Key Highlights of the Report:

- **Regions of highest TWS losses:** Antarctica and Greenland.
- Terrestrial water storage (TWS) dropped at a rate of 1 cm per year in 20 years (2002-2021) globally.
- **TWS loss** in India:
  - TWS has been lost at a rate of 3-4 cm per year.
  - Maximum loss in northern part of the country.

Data on Water Resource Stress in India:

- Per capita water availability is reducing due to an increase in population.
- According to the **Union Ministry of Housing and Urban Affairs:**
  - Average annual per capita water availability has reduced to 1,545 cubic metres in 2011, from 1,816 cubic metres in 2001.
- According to **Falkenmark Water Stress Indicator**:
  - Five of the twenty-one river basins in India are 'absolute water scarce' (per capita water availability below 500 cubic metres).

  - Five are 'water scarce' (per capita water availability below 1,000 cubic metres).
  - Three are 'water stressed' (per capita water availability below 1,700 cubic metres).
- According to the **State of India's Environment, 2020**:

By 2050:

  -
  - Six river basins in India will become absolute water scarce.
  - Six will become water scarce.
  - Four will become water stressed.

Terrestrial Water Storage (TWS):

- This **includes all phases of water over land** (e.g., surface and groundwater, soil moisture, snow etc.).
- It acts as an important fresh water resource and a critical component of terrestrial water cycle.

World Meteorological Organization:

- WMO is a **specialized agency** of the United Nations responsible for promoting international cooperation on atmospheric science, climatology, hydrology and geophysics.
- **History:** WMO originated from the International Meteorological Organization, a nongovernmental organization founded as a forum for exchanging weather data and research at the **1873** Vienna International Meteorological Congress.
- **Headquarters:** Geneva
- Its supreme body is the World Meteorological Congress.
- **Membership:** 193 Member States.

WMO facilitates and promotes:

- An **integrated Earth System observation network** to provide weather, climate and water-related data.
- **Data management centres** and telecommunication systems for the provision and rapid exchange of weather, climate and water-related data.
- Creation of **standards for observation** and monitoring in order to ensure uniformity in the practices and procedures & ascertain the homogeneity of data and statistics worldwide.

- **Provision of weather, climate and water-related services** to reduce disaster risks and contribute to climate change adaptation & for sectors such as transport (aviation, maritime and land-based), water resource management, agriculture, health, energy and other areas.
- **Activities** in operational hydrology & cooperation between National Meteorological and Hydrological Services.

GS 3 : Economy, Science and Technology,Environment

3. Ethanol blending risks India's Food security

India's plan to promote ethanol derived from **rice, corn** and **sugarcane** is drawing criticism from some experts who warn it could **undermine food security** in the country.

Major Highlights:

- The government of India has advanced the target **for 20 per cent ethanol blending in petrol (also called E20) to 2025 from 2030**. E20 will be rolled out from April 2023.
- Major sources of ethanol to achieve the target are **rice, corn** and **sugarcane.**

Government's Justification:

- The new target will:
  - Save $4 billion annually by cutting crude imports
  - Reduce carbon emission
  - Boost farmers income
- Government has termed it as **strategic requirement** in light of **grain surplus** (state grain reserves stood at 21.8 million tons of rice against requirement of 13.54 million tons) and availability of technology.

Concerns:

- The report that maps out the new ethanol blending target primarily focuses **on food-based feedstocks**. This can result in **diversion of food grains** meant for the poor to ethanol production companies at subsidized rates due to:

  - Financial assistance to biofuel producers.
  - Faster environmental clearances by the government on such projects.
- E-20 policy can drive farmers toward water-intensive crops and create a **water crisis**.
- E-20 can result in **competition between the distilleries** and the public distribution system for subsidized food grains and threaten **rural food security**.
- The **unregulated carbonyl emissions**, such as acetaldehyde emission are higher with E10 and E20 as compared to normal petrol.

Use of Ethanol in Vehicles:

- **Calorific value** of ethanol is around 2/3rd of gasoline, thus, the increase in ethanol content will decrease the heating value of the ethanol-gasoline blend. Hence, more fuel is required to achieve the same engine power output.
- Ethanol has a higher-octane number and thus the engine can be operated with a high compression ratio without knocking.
- This **increases the efficiency of the engine** considerably.
- This combined with optimal spark timing negates the fuel economy debit due to low calorific value of ethanol.

E-20 roadmap:

- Raise pan-India ethanol production capacity from the current 700 to 1500 crore litres.
- Phased rollout of E10 fuel by April 2022. Phased rollout of E20 from April 2023, its availability by April 2025.
- Rollout of E20 material-compliant and E10 engine-tuned vehicles from April 2023.
- Production of E20-tuned engine vehicles from April 2025.
- Encourage use of water-sparing crops, such as maize, to produce ethanol.
- Promote technology for the production of ethanol from non-food feedstock.

Significance of E-20:

- Reducing the oil imports.
- Use of ethanol-blended petrol decreases emissions such as carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx).
- Improving Energy Security.
- Better air quality.
- Increase in farmers' income.
- Investment opportunities.
- Fulfilling India's Nationally Determined contributions (NDCs).

Key Facts:

- Even after the Green revolution, India is placed at **94th** rank on the **Global Hunger Index 2020**.
- **Food and Agricultural Organisation** has estimated that **15%** of Indians were **undernourished** between 2018 and 2020.

4. I-Sprint'21: Fintech Hackathon

International Financial Services Centres Authority (IFSCA) and **GIFT City** launched I-Sprint'21, on 7th October 2021.

Major Highlights:

- The first Sprint of the series **"Sprint01: BankTech"** is focused on FinTech's for the Banking sector.
- It is jointly hosted by IFSCA and GIFT city in collaboration with **NITI Aayog.**
- The Partners to the Hackathon are:
- **ICICI Bank**, HSBC Bank, Zone Startups, and Invest-India.
- IFSCA introduced **"Regulatory Sandbox**" in October 2020 which allows the FinTech entities to conduct experiment with innovative FinTech solutions including customers for a limited time frame.

Aim:

- To connect IFSCA and International financial service Centre (GIFT IFSC) with **FinTech Ecosystem.**
- To **solve business problems** for the Banking Units at GIFT IFSC.
- To promote **retail business** for the Banking Units at GIFT IFSC.

Other Highlights:

- **FinTech finalists** will be allowed to enter IFSCA Regulatory/Innovation Sandbox.
- FinTechs will work directly with the Partner Banks on the problems **like APIs, mentoring, guidance,** etc.
- Opportunity for the FinTechs to show-case during the FinTech Forum of IFSCA scheduled in December 2021.
- **Business Support Solution Partner** benefits of up to $25,000 per startup from Zone Startups India's network.

What is International Financial Services Centres Authority:

- The (IFSCA) was established on April 27, 2020 under the **International Financial Services Centres Authority Act**, 2019.
- **Headquarters**: GIFT City, Gandhinagar, Gujarat.

Role of IFSCA:

- It is a unified authority for the development and **regulation of financial products**, services, and institutions in the International Financial Services Centre (IFSC), India.
- The **GIFT IFSC** is the only international financial services centre at present.
- It has been established to promote **ease of doing business** in IFSC and provide world class regulatory environment.
- The objective is **to develop** a strong global connect and focus on the needs of the Indian economy
- **To perform** as an international financial platform for the entire region and the global economy.

5. RBI Keeps Repo Rates Unchanged

The Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) **kept the key interest rates unchanged** and **reduced the inflation target for the year 2021-22**.

Major Highlights:

- Interest rates in the banking system are expected to remain steady as the Repo Rate remains unchanged at 4 per cent, Reverse Repo rate at 3.35 per cent and the Marginal Standing Facility (MSF) rate and the Bank Rate at 4.25 per cent.
- Continuation with the accommodative stance to revive and sustain growth on a durable basis and continue to mitigate the impact of Covid-19 on the economy.

RBI inflation forecast:

- The RBI has slashed the inflation forecast for 2021-22 to **5.3 per cent from 5.7 per cent** estimated earlier.
- The inflation trajectory is set to **edge down during Q3 of 2021-22**, and several evolving factors provide comfort on the food price front.

Growth forecast:

- The RBI has retained the projection for real **GDP growth at 9.5 per cent** in 2021- 22 consisting of 7.9 per cent in Q2 of the current year.
- Almost all components of GDP registered year-on-year growth, despite a sharp loss of momentum due to the second wave.

6. Cybersecurity Norms for Power Sector

The **Central Government** has released cybersecurity guidelines for the power sector which will apply to all responsible entities.

Key Highlights:

- The guidelines are a **precursor** to cybersecurity regulations that the Central Electricity Authority is working on.
- It will **apply** to power generation utilities, distribution utilities, transmission companies and load dispatch centres, system integrators, equipment makers, vendors, service providers, IT hardware and software OEMs engaged in power supply system.
- The key requirements include appointment of a **Chief Information Security Officer** (CISO) at each "**responsible entity"** as well as the setting up of an **Information Security Division** headed by the CISO.
- The entities will also be required to incorporate a **procedure for identifying and reporting of any disturbances** suspected or confirmed to be caused by sabotage.
    - They have to submit the report to the sectoral Computer Emergency Response Team (CERT) and the Indian CERT within 24 hours.

Need for the move:

- Four of India's five **regional load dispatch centres** of India have faced cyberattacks in past some months.
- **Red Echo**, a hacker group affiliated with the **Chinese government** is speculated to targeting India's power grid.

CISO (Chief Information Security Officer):

- CISO is a senior-level executive responsible for **developing and implementing** an information security program.

  - The program includes **procedures** and **policies** designed to protect enterprise communications, systems and assets from both internal and external threats.
- CISO is tasked with anticipating, assessing and actively managing new and emerging threats.

Cyber Security:

- Cyber security refers to **the body of technologies, processes, and practices designed to protect** networks, devices, programs, and data from attack, damage, or unauthorized access.
- **Need for Cyber security :**
  - Government, military, corporate, financial, and medical organizations collect, process, and store unprecedented amounts of data on computers and other devices.
  - A significant portion of data can be sensitive information, whether that be intellectual property, financial data, personal information, or other types of data for which unauthorized access or exposure could have negative consequences.

Threats to Cyber-security:

- A cybersecurity threat is a **malicious** and **deliberate attack** by an individual or organization to gain unauthorized access to another individual's or organization's network to damage, disrupt, or steal IT assets, computer networks, intellectual property, or any other form of sensitive data.

Types of threats:

- **Malware attacks**: Malware is defined as malicious software, including spyware, ransomware, viruses, and worms, which gets installed into the system when the user clicks a dangerous link or email.
- **Phishing:** Cybercriminals send malicious emails that seem to come from legitimate resources.
- **Spear phishing**: A more sophisticated form of a phishing attack in which cybercriminals target only privileged users such as system administrators.
- **Man in the Middle (MitM) attack**: This occurs when cyber criminals place themselves between a two-party communication.
- **Denial of Service attack:** Aims at flooding systems, networks, or servers with massive traffic, thereby making the system unable to fulfil legitimate requests.

- **Structured Query Language (SQL) injection attack**: This occurs when cybercriminals attempt to access the database by uploading malicious SQL scripts.
- **Zero-day Exploit attack:** Occurs when software or hardware vulnerability is announced, and the cybercriminals exploit the vulnerability before a patch or solution is implemented.
- **Advanced Persistent threat:** Occurs when a malicious actor gains unauthorized access to a system or network and remains undetected for an extended time.
- **Ransomware:** A type of malware attack in which the attacker locks or encrypts the victim's data and threatens to publish or blocks access to data unless a ransom is paid.
- **Domain Name System (DNS) attack:** Attackers leverage the DNS vulnerabilities to divert site visitors to malicious pages (**DNS Hijacking**) and exfiltrate data from compromised systems (**DNS Tunnelling**).

Prelims Practice Questions

1. Which of the following are the properties of Guduchi (Giloy)?

1. Hepatoprotective
2. Prevent respiratory illness
3. Neuroprotective
4. Protects hearts against infarction

Select the correct answer using the code given below:

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

Answer : D

Explanation

- Giloy (Tinospora cordifolia) is a climbing shrub that grows on other trees, from the botanical family Menispermaceae.
    - It is an essential herb in Ayurvedic medicine and all its parts are thought to have health benefits.
    - The plant is native to India but also found in China and tropical areas of Australia and Africa.
- **Properties:**
    - **Hepatoprotective:** Giloy is an **efficient hepatoprotective agent.** It increases the glutathione (GSH) level and supports the liver to detoxify toxic waste from the body.
    - **Cardioprotective:** Giloy modulates lipid metabolism via inhibiting glucuronide and cholesterol and also **protects hearts against infarction** with its antioxidant properties.
        - Infarction is tissue death (necrosis) due to inadequate blood supply to the affected area.
    - **Neuroprotective:** It modulates the antioxidant enzyme system of brain tissue and **preserves dopaminergic neurons.**
    - **Prevent Respiratory Illness:** Giloy has been preferred traditionally to treat ailments such as bronchitis and chronic cough.
        - Due to its powerful anti-inflammatory and antioxidant properties it **pacifies the mucous membrane of the respiratory system** thereby making it very effective in respiratory issues like asthma, cough, cold and tonsils.
- **Hence, option D is correct.**

2. Nations across the world have been contemplating imposing a minimum permissible level of corporate tax in order to counter tax havens. Which of the following rates of minimum corporate tax has been decided by these nations?

a. 23%
b. 15%
c. 20%
d. 18%

Answer: b

Explanation:

- According to Organisation for Economic Cooperation and Development (OECD), a global deal to ensure big companies pay a minimum tax rate of 15% and make it harder for them to avoid taxation has been agreed upon by 136 countries.
- The global minimum tax is being discussed as the governments want to discourage multinationals from shifting profits – and tax revenues – to low-tax countries regardless of where their sales are made.
- The global minimum tax rate would apply to overseas profits of multinational firms with 750 million euros in sales globally.
- Governments could still set whatever local corporate tax rate they want, but if companies pay lower rates in a particular country, their home governments could top up their taxes to the 15% minimum, eliminating the advantage of shifting profits.

3. Consider the following statements regarding the Sovereign Credit Rating (SCR):

1. It assesses the political risks associated with investing in the debt of a particular country.
2. Obtaining a sovereign credit rating facilitates ease in issuing bonds in external debt markets.

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

- **Sovereign Credit Rating (SCR)** is an independent assessment of the creditworthiness of a country or sovereign entity.
    - It can give investors **insights into the level of risk associated** with investing in the debt of a particular country, **including any political risk. Hence, statement 1 is correct.**

- In addition to **issuing bonds in external debt markets,** another **common motivation for countries to obtain a sovereign credit rating** is to attract Foreign Direct Investment (FDI). **Hence, statement 2 is correct.**
- At the request of the country, a credit rating agency will evaluate its economic and political environment to assign it a rating.
    - Moody's considers a Baa3 or higher rating to be of investment grade, and a rating of Ba1 and below is speculative.
    - S&P gives a BBB- or higher rating to countries it considers investment grade, and grades of BB+ or lower are deemed to be speculative or "junk" grade.

4. Which of the following statements regarding RBI's G-SAP operations is not correct?

a. It involved the RBI buying government securities from the market.
b. It was launched to restrict the availability of liquidity in the market and thus control inflation.
c. This was launched during the Covid-19 outbreak.
d. None of the above.

Answer: b

Explanation:

- The RBI periodically purchase Government bonds from the market through Open Market Operations (OMOs).
- The G-SAP is in a way an OMO but there is an upfront commitment by the central bank to the markets that it will purchase bonds worth a specific amount.
- This was launched during the Covid-19 outbreak. It was launched to ensure adequate liquidity and for stabilising financial markets.

5. With reference to the Palk Bay scheme, consider the following statements:

1. It was launched as part of the umbrella Blue Revolution Scheme in 2017.

2. It is a Tamil Nadu-specific centrally sponsored scheme.

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

- The Palk Bay scheme, also called "The Diversification Of Trawl Fishing Boats From Palk Straits Into Deep Sea Fishing Boats", was **launched in 2017** as a **Centrally Sponsored Scheme.**
- It is a **Tamil Nadu-specific scheme** aimed at providing 2,000 vessels in three years to fishermen of the State and motivating them to abandon bottom trawling. **Hence statement 1 is correct.**
- It was launched as **part of the umbrella Blue Revolution Scheme.** The Blue Revolution is part of the Government's efforts to promote fishing as an allied activity for farmers in order to double their incomes. **Hence statement 2 is correct.**
- Another **objective of the scheme is to "reduce fishing pressure"** around the proximity of the International Maritime Boundary Line (IMBL) so that Tamil Nadu fishermen do not cross the IMBL and fish in Sri Lankan waters.

6. With reference to Mian Tansen, which one of the following statements is not correct?

a. Tansen was the title given to him by Emperor Akbar.
b. Tansen composed Dhrupads on Hindu gods and goddesses.
c. Tansen composed songs on his patrons.
d. Tansen invented many Ragas.

Answer: a

Explanation:

- Tansen was a composer, musician and vocalist, to whom many compositions have been attributed in northern regions of the Indian subcontinent.

- He was also an instrumentalist who popularized and improved musical instruments.
- He is among the most influential personalities in the North Indian tradition of Indian classical music, called *Hindustani*.
- Tansen was the title given to him by Raja Vikramjit of Gwalior. Tansen was a court musician in the darbar of Raja Ramachandra of Bandavagarh (Rewa).
- Tansen composed Dhrupads on Hindu gods and goddesses. He also composed songs on his patrons.
- Tansen invented many Ragas.

Mains Practice Questions

Q1. Over the past few decades, the Dairy sector has emerged as a lifeline of the rural economy in India. However, it has become one of the most vulnerable sectors of the rural economy too. Discuss.

Approach

- Start the answer by briefly mentioning the importance of dairy sector
- Discuss the major challenges faced by the dairy sector.
- Conclude Suitably.

Q2. Courts are sitting on a pendency bomb and it has never been more urgent to strengthen the Indian judiciary. Discuss.

Approach

- Start the answer by briefly mentioning the magnitude of pendency of cases in India.
- Discuss the major reasons for pendency of cases and steps to rectify them.
- Conclude Suitably.