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GS 2 : Polity, Governance, International Relations

1. Disable unconstitutional sections

Context:

- The Supreme Court has expressed shock over the fact that despite its declaration of **Section 66A of the Information Technology (IT) Act, 2000** as being unconstitutional six years ago (Shreya Singhal vs. Union of India), criminal cases are still being registered by the police under this Section.

Background:

Shreya Singhal case:

- The Supreme Court had declared Section 66A of the IT Act, which made online posting of information considered as “grossly offensive” a crime punishable by jail, as **being violative of Article 19(1)(a) of the Constitution and not saved under the ambit of reasonable restrictions defined in Article 19(2)**.
- The Supreme Court had held that the expressions used in Section 66A were open-ended, undefined and therefore arbitrary.

Concerns:

Continued usage of unconstitutional provisions:

- As per the petitioner, around 1,307 cases had been registered since 2015 across States based on the outlawed section 66A.
- **Similar patterns have been observed even in case of Section 377 and Section 497 of the Indian Penal Code (IPC)** which have been outlawed by landmark Supreme Court Judgements.
 - Section 377 dealing with “unnatural sex”
 - Section 497 dealing with adultery
- Despite explicit Supreme Court judgements, registration of FIRs by the police under these sections has continued unabated. **This is illegal and violative of the Court’s directions.**

Recommendations:

- One best way to avoid registration of offences under sections held unconstitutional is to **educate police officers**.
- Such sections if invoked due to lack of knowledge at the police station level need to be removed at the earliest.
- There should be **appropriate accountability measures in place to fix responsibility on the erring officer**. Those responsible for the negligence should not only be answerable to the courts for contempt but also be liable for departmental action.
- The unconstitutional sections of the IPC can be disabled in the **Crime and Criminal Tracking Network and Systems (CCTNS)**.
- The Court must come out with appropriate guidelines against the registering of FIRs under unconstitutional provisions.

2. India's trade with China soared 62% in H1

Context:

- Data released by China's General Administration of Customs on **India-China trade**.

Details:

- **Bilateral trade between India and China** in the first six months of 2021 has hit **\$57.48 bn**. This figure is the highest on record for the first half of a year.
- **India's trade with China in the first half of 2021 has risen by a record 62.7% – the highest increase among China's major trade partners.**
 - India's imports were driven by record purchases of medical supplies. India's exports to China climbed 69.6% driven by exports of iron ore, cotton, and other raw material-based commodities.
- A continued aspect of concern is the skewed trade relation in favour of China. The **trade deficit** for the first six months stood at \$28.04 billion.

3. The upcoming crisis in Indian federalism

Context:

- In the light of the **upcoming delimitation exercise scheduled for 2026**, the article analyzes the possible repercussions of the exercise and suggests certain measures which can help India counter the possible challenges to its unity and integrity.

Background:

Delimitation:

- Delimitation is the act of **redrawing boundaries of Lok Sabha and Assembly seats to represent changes in population.**
- The objective is to provide **equal representation for equal population segments**, and a fair division of geographical areas.

Delimitation exercises in India:

- Delimitation is done on the basis of the preceding Census. The first such exercise in 1950-51 was carried out by the President, with the help of the Election Commission. Following the Delimitation Commission Act in 1952, all such exercises have been conducted by Delimitation Commissions.
- **Delimitation commissions have been set up four times in the past – 1952, 1962, 1972 and 2002** – under Delimitation Commission Acts of 1952, 1962, 1972 and 2002.

For more information on delimitation commission refer to the following article:

Delimitation Commission

- There was no delimitation after the 1981 and 1991 Censuses. Amid fears that states that took little interest in population control could end up with more seats in Parliament, while the southern states that promoted family planning could end up with fewer seats, the **Constitution was amended in 1976 to suspend delimitation until 2001.**
- Another amendment **extended the freeze on the number of seats in the Parliament until 2026**, by when the country was projected to achieve a uniform population growth rate.

Concerns:

- The upcoming delimitation faces the tough task of **balancing the inherent contradiction between the principles of democracy and federalism.**

Lack of democratic principle:

- Since 1976, seats in the Lok Sabha have reflected the 1971 census and have not taken into account changes in the population. This had led to wide discrepancies in the size of constituencies, with the largest having over three million electors, and the smallest less than 50,000.
- This goes against the democratic ideal of **“one person, one vote, one value”**.

Concerns over federal principle:

- The delimitation exercise would lead to a dramatic change in the composition of the Lok Sabha.
- There has been unequal population growth among States. India's highly developed States have been successful at family planning, while the poorer States continue to grow in terms of population. These **states with large population could gain if the delimitation exercise were to take place in 2026** while India's most successful States could land in a disadvantageous position politically.
- This could further **accentuate the existing imbalance of power between the big and small states in India**. Bigger States are likely to dominate the national conversation over smaller States.
- This would generate much resentment among the States that will lose political and economic power and influence.

Recommendations:

- The article notes that extending the freeze on delimitation exercise would only push the issue forward and not help resolve the issue at hand but also perpetuate the increasingly undemocratic set up.
- In this regard the article suggests **going ahead with the delimitation exercise while at the same time taking appropriate measures to assuage the legitimate fear of the smaller states**.
- The following changes could be incorporated into the governing structures of Indian federalism in this direction.
 - The **powers of States vis-à-vis the Centre contained in the schedule 7 lists** and in the provisions dealing with altering boundaries of States **must be increased** to assuage the fear of smaller States that they will be dominated by bigger ones.
 - The **role and composition of the Rajya Sabha (House of States) must be expanded**. This would provide a great say for the states.
 - Important governance aspects such as constitutional amendments and the change in financial redistribution between the States must **require the consent of all** or nearly all States. Important aspects should be implemented only by unanimity or at least a super majority and not simple majority.
 - The article suggests **breaking up the biggest States into smaller units** that will not by themselves dominate the national conversation.
- The article suggests also adopting certain measures from **other federations, such as the United States, Switzerland and Belgium** to empower the constituent states in the federation irrespective of their sizes.

4. Landslip destroys houses in H.P.

Landslip:

- Landslip is the **sliding of a mass of land down a slope or cliff**.
- About 12.6 per cent of the Indian landmass is prone to landslips, with **the Himalayas and Western Ghats regions particularly prone** due to climate, geomorphology and geology.
- **Rainfall and earthquakes are the main triggers of these landslides. Poor land management practices** (e.g., deforestation, slash-and-burn cultivation, haphazard mining and heavy tilling in agriculture) coupled with **increased development and poor settlement location** have increased the vulnerability of these areas to landslides.
- The impact of landslides on people, business, culture and heritage can be considerable and wide-ranging, including fatalities, loss of agricultural land and infrastructure, and damage to ecosystems.

Context:

- The **Boh valley in Kangra district of Himachal Pradesh** witnessed a landslip triggered by heavy rains.
- The NDRF team have been carrying out relief and rescue operations.

5. Funding gap may stump 'Housing for All' goal

Context:

- Ratings agency ICRA's analysis of the **PM Awas Yojana (PMAY)**.

Background:

PM Awas Yojana (PMAY):

- The PMAY was **launched in 2015 to provide housing for all by 2022**.
- While the PMAY-Urban component is being implemented by the **Ministry of Housing and Urban Poverty Alleviation**, the PMAY-Rural component is being implemented by the **Ministry of Rural Development**.
- The programme has 4 components:
 - Credit Link Subsidy Scheme (CLSS).
 - In-situ rehabilitation of existing slum dwellers using land as a resource through private participation.
 - Affordable Housing in Partnership (AHP).
 - Subsidy for beneficiary led individual house construction/enhancement.

Details:

- The PMAY scheme faces a **severe funding crunch**. The scheme faces an estimated ₹1.24 lakh crore funding gap to be bridged in the next eighteen months.
- **The implementation of the scheme is running behind schedule**. While the Centre had promised to build 50 million houses under the scheme, it was subsequently scaled down to 32.6 million. Even this target would be difficult to meet by 2022.

6. An unproductive idea

Context:

- **Uttar Pradesh's new population policy**.

Background:

- Given that the **increasing population acts as a hurdle in national development**, there have been calls to control the population growth rate.
- **India has been moving steadily towards attaining the replacement level of Total Fertility Rate of 2.1**. However some states like Uttar Pradesh and Bihar continue to have high TFR.
 - UP has a TFR of 2.7, while Bihar has a TFR of 3.1.

Significance:

- The various aims set out in the new policy like **increasing the rate of modern contraceptive prevalence, male contraception, decreasing maternal mortality and infant mortality rates** are welcome.
- These objectives are in line with the **Cairo Consensus adopted in the Cairo International Conference on Population and Development in 1994**. The Cairo Consensus called for a promotion of reproductive rights, **empowering women**, universal education, maternal and infant health to tackle the challenge of high fertility.

Concerns:

Against right of person to informed choices:

- **Incentives and penalties** form an integral component of the measures announced under UP's population policy, to control population growth.
 - The Government aims to incentivise one-child families and reward those with two children with perks in government schemes, rebates in taxes and loans, cash awards etc. It aims to disincentivize more than two children through denial of subsidies and welfare benefits, a bar on

applying for government jobs and taking part in local elections for those with more than two children.

- The incentives/disincentives approach has been **denounced in the past by the National Human Rights Commission** for being against the right of people to informed choices on size of family.

Failure to acknowledge underlying socio-economic aspects:

- This amounts to attempts of tackling a **basically socio-economic issue** as a demographic one. This is bound to remain ineffective as the policy fails to adequately account for the socio-economic aspects which have contributed to the higher TFR.

Threat of discrimination:

- Empirical studies of coercive measures have shown their discrimination against marginalised people in particular.
- The **disincentives approach could rob the access to critical governmental aid and support for the marginalized sections** and could further deepen the existing inequalities in the society.

Recommendations:

- Given the fact that the incentives/ disincentives approach have had no discernible effect on population control, **States should tackle the socio-economic issues confronting India's citizenry.**
- This could involve implementing more substantive **poverty reduction schemes**, economic reforms aimed at raising labour productivity and employment opportunities, **empowering women etc.**

GS 3 : Economy, Science and Technology, Environment

7. 'Anti-terror law must not be misused to harass people'

- Supreme Court judge Justice D.Y. Chandrachud while delivering a speech on the **'Role of the Supreme Court in protecting the fundamental rights in challenging times'** has stated the need to ensure that anti-terror laws are not misused to quell dissent or harass citizens.
- He reiterated that the judiciary must remain the first line of defence against any move to deprive citizens of their liberty and should not be concerned about its interventions being labelled as **"judicial activism"** or **"judicial overreach"**.

- The Supreme Court should act as “the guardian of the Constitution” protecting the citizens’ fundamental human rights from any infringement through executive or legislative actions.

8. S&P keeps India rating at lowest investment grade

Context:

- S&P Global Ratings forecast of the Indian economy.

Details:

- S&P Global Ratings has kept **India’s sovereign rating unchanged at the lowest investment grade of ‘BBB-’**. Based on forecasts of an economic recovery following the resolution of the COVID-19 pandemic, S&P has kept the **rating outlook for India at stable**.
- S&P has projected a 9.5% GDP growth in the current fiscal year and a 7.8% GDP growth in the following year.
- S&P Global Ratings has called for additional **economic reforms that spur investment and create jobs** to ensure faster economic recovery from the current economic slowdown.

9. ‘High fuel prices threaten recovery’

Context:

- State Bank of India’s economics research team’s findings on the **rising fuel prices in India**.

Details:

- India has been witnessing **record-high fuel prices**.
- Fuel costs have been ratcheted up to current levels by the combined effects of **rising benchmark Brent prices** and the **increasing government levies on fuels**.
 - Currently, central and state-level taxes contribute to about 55 percent of the retail price of petrol and 51 per cent for diesel.

Concerns:

Inflation concerns:

- The higher petrol and diesel prices will **lead to rising transport costs which will eventually push up inflation rates**.

- The study predicts that with every 10% increase in petrol pump prices in Mumbai, the Consumer Price Index (CPI) could rise by 0.50%.

Household financial distress:

- The higher expenditure on fuels and also the higher inflation rates have pushed the large middle-class population into financial distress.
- There has been a **significant dip in bank deposits**. The decline in financial savings reflects household distress in India.
 - The household financial savings rate in the third quarter of 2020-21 has come down to 8.2% of GDP from 21% and 10.4% in the previous two quarters.
- **Household debt has increased.**
 - Household debt as a percentage of GDP had increased sharply to 37.3% or Rs. 73.6 lakh crore in 2020-21, from 32.5% of GDP or Rs. 66.1 lakh crore in 2019-20.

Delay economic recovery:

- India's economic recovery could be delayed by rising financial stress on households.
- The higher expenditure on oil has distorted non-discretionary spending and led to **decreased spending on non-discretionary items like grocery and utility services**.
- Also given that the share of non-discretionary spend has jumped to 75% in June, from 62% in March, this has **crowded out customers' discretionary expenses**.
- The report indicated consumers were cutting back spending on other goods to be able to accommodate higher fuel costs. This does not augur well for a **predominantly domestic consumption-based economy like India**.
- The lack of demand in the economy will delay the economic recovery in the post-COVID phase.

Conclusion:

- SBI's economists have called for the fuel taxes to be cut through **tax rationalization** to both cool inflationary pressures and ease the burden on consumers.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. Fertiliser Self-Sufficiency

Why in News

Recently, the **Minister of Chemicals and Fertilisers** has reviewed the **initiatives of the Department of Fertilisers** for making India **Atmanirbhar in Fertilisers**.

- The **Government** is planning to liberalise **Market Development Assistance (MDA) policy** to promote the use of **alternative fertilisers**.

Key Points

- **MDA Policy:**
 - MDA policy was earlier limited to **city compost only**.
 - There were **demands to expand this policy** by incorporating **organic waste** like **Biogas, Green Manure, organic compost of rural areas, solid/liquid slurry, etc.**
 - This expansion will fully complement the **Swachh Bharat Abhiyan**.
- **Government Initiatives and Schemes:**
 - **Neem Coating of Urea:**
 - The Department of Fertilizers (DoF) has made it mandatory for all the domestic producers to produce **100% urea as Neem Coated Urea (NCU)**.
 - The benefits of use of NCU are as under:-
 - Improvement in soil health.
 - Reduction in usage of plant protection chemicals.
 - Reduction in pest and disease attack.
 - An increase in yield of paddy, sugarcane, maize, soybean, Tur/Red Gram.
 - Negligible diversion towards non-agricultural purposes.
 - Due to slow release of Nitrogen, Nitrogen Use Efficiency (NUE) of Neem Coated Urea increases resulting in reduced consumption of NCU as compared to normal urea.
 - **New Urea Policy (NUP) 2015:**
 - Objectives of the policy are-
 - To maximize **indigenous urea production**.
 - To promote energy efficiency in the urea units.

- To rationalize the subsidy burden on the Government of India.
- **New Investment Policy- 2012:**
 - The Government announced **New Investment Policy (NIP)-2012** in January, 2013 and made amendments in 2014 to facilitate fresh investment in the **urea sector** and to make **India self-sufficient in the urea sector**.
- **Policy on Promotion of City Compost:**
 - The Government of India approved a **policy on promotion of City Compost**, notified by the DoF in 2016 granting Market Development Assistance of Rs. 1500/- for scaling up production and consumption of city compost.
 - To increase sales volumes, compost manufacturers willing to market city compost were allowed to sell city compost in bulk directly to farmers.
 - Fertilizer companies marketing city compost are covered under the **Direct Benefit Transfer (DBT)** for Fertilizers.
- **Use of Space Technology in Fertilizer Sector:**
 - DoF commissioned a three year Pilot Study on “**Resource Mapping of Rock Phosphate using Reflectance Spectroscopy and Earth Observations Data**” by National Remote Sensing Centre under ISRO, in collaboration with Geological Survey of India (GSI) and the Atomic Mineral Directorate (AMD).
- **The Nutrient Based Subsidy (NBS) Scheme:**
 - It has been implemented from **April 2010 by the DoF**.
 - Under NBS, a **fixed amount of subsidy decided on an annual basis**, is provided on each grade of subsidized Phosphatic & Potassic (P&K) fertilizers depending on its nutrient content.
 - It aims at ensuring the balanced use of **fertilizers, improving agricultural productivity, promoting the growth of the indigenous fertilizers industry** and also reducing the burden of Subsidy.

Fertilizer Consumption in India

- **India’s fertiliser consumption in FY20** was about 61 million tonnes – of which 55% **was urea** – and is estimated to have increased by 5 million tonnes in FY21.
 - Since **non-urea (MoP, DAP, complex) varieties** cost higher, many **farmers prefer to use more urea** than actually needed.
 - The government has taken a number of **measures to reduce urea consumption**. It introduced **neem-coated urea** to reduce illegal

diversion of urea for non-agricultural uses. It also stepped up the **promotion of organic and zero-budget farming.**

- Currently, the fertiliser production of the country is 42-45 million tonnes, and **imports are at around 18 million tonnes.**
- **Subsidy on Urea:** The Centre **pays subsidy on urea to fertiliser manufacturers on the basis of cost of production** at each plant and the units are required to sell the fertiliser at the government-set Maximum Retail Price (MRP).
- **Subsidy on Non-Urea Fertilisers:** The MRPs of non-urea fertilisers are **decontrolled or fixed by the companies.** The Centre, however, pays a flat per-tonne subsidy on these nutrients to ensure they are priced at “reasonable levels”.
 - Examples of non-urea fertilisers: **Di-Ammonium Phosphate (DAP), Muriate of Potash (MOP).**
 - All **Non-Urea based fertilisers are regulated under Nutrient Based Subsidy Scheme.**

2. BHIM-UPI in Bhutan

In news Union Minister of Finance & Corporate Affairs along with the Finance Minister of Bhutan jointly launched BHIM-UPI in Bhutan.

- India and Bhutan have already enabled interoperability in acceptance of Rupay cards in each other's countries.

Benefits

- Smooth connectivity between two countries will benefit a large number of tourists and businessmen from India who travel to Bhutan each year.
- This will enhance the ease of living and ease of travelling through cashless transactions.

Do you know?

- Bhutan is the first country to adopt UPI standards for its QR deployment, and the first country in our immediate neighbourhood to accept mobile based payments through the BHIM App.

What is Unified Payments Interface (UPI)?

- UPI is a payment system. launched in April 2016 by National Payments Corporation of India(NPCI), that allows money transfer between any two bank accounts by using a smartphone.

- UPI allows a customer to pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFSC code, or net banking/wallet passwords.
- It also caters to the “Peer to Peer” collect request which can be scheduled and paid as per requirement and convenience.
- More than 100 million UPI QRs have been created in the last 5 years
- BHIM UPI in 2020-21 has processed 22 billion transactions worth Rs 41 lakh crore.

What is National Payments Corporation of India (NPCI)?

- It is an umbrella organisation for operating **retail payments and settlement systems** in India.
- It is an initiative of the Reserve Bank of India (**RBI**) and **Indian Banks’ Association (IBA)** under the provisions of the Payment and Settlement Systems Act, 2007.
- It has been incorporated as a “**Not for Profit**” Company under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013).
- In 2016 the shareholding was **broad-based to 56 member banks** to include more banks representing all sectors.
- Along with UPI, Other systems include National Automated Clearing House (NACH), Immediate Payment Service (IMPS), Aadhaar enabled Payment System (AePS), Bharat Bill Payment System (BBPS), RuPay, FASTag etc.

3. Govt may issue guidelines for 'flex-fuel' vehicles by October

The government may release new guidelines for use of flexible fuel vehicles (FFVs) using flex engines to be issued by the third quarter of current year (FY22).

Highlights:

- Auto companies may soon be asked to manufacture passenger and commercial vehicles that run on **multiple fuel configuration** aimed at **reducing the use of polluting fossil fuels** and cutting down harmful emissions.
- It would **specify engine configuration** and other changes required in vehicles to conform to stipulated changes in fuel mix.
- An incentive scheme would be initiated to promote manufacture and use of **flex engines in vehicles**.

What are Flex Fuel Vehicles (FFVs)?

- An FFV is a **modified version of vehicles** that could run **both on gasoline and doped petrol** with different levels of ethanol blends. FFVs will allow vehicles to use all the blends and also run on unblended fuel.
- The concept of FFV has been proposed in view of the **rising ethanol percent in petrol**.
- According to the NITI Aayog report, FFVs have compatible engines to run on **more than 84 per cent ethanol blended petrol**.
- In fact, these vehicles are a logical extension of the Ethanol Blended Petrol (EBP) programme launched by the Union Ministry of Petroleum and Natural Gas in January 2003.
- The programme makes it mandatory on the part of oil marketing companies like Indian Oil, HPCL, BPCL, etc to sell ethanol blended petrol.
- For India, FFVs will **present a different advantage** as they will allow vehicles to use different blends of ethanol mixed petrol available in different parts of the country.

Advantages:

- Flex fuels are cheaper than petrol.
- Alternative fuel ethanol is **Rs 60-62 per litre** while petrol costs more than Rs 100 per litre in many parts of the country, so by using ethanol will save Rs 30-35 per litre.
- India has surplus produce of corn, sugar and wheat, the mandatory blending of ethanol programme will help farmers in realising higher incomes.
- Government has taken the decision to make ethanol by using foodgrains and sugarcane juice.
- For the overall Indian economy, higher usage of ethanol as an automobile fuel will **help save import costs as the country** meets more than 80 per cent of its crude oil requirements through imports.

Disadvantages/challenges:

- Customer acceptance will be a major challenge since the cost of **ownership and running cost** are going to be **very high** compared with 100 per cent petrol vehicles.
- The flex fuel vehicles themselves could be **more expensive than regular vehicles** due to the upgradation of materials, engine parts and fuel system.
- Further, running cost (due to lower fuel efficiency) will be higher by more than 30 per cent when run with 100 per cent ethanol (E100).
- Flex Fuel Engines **cost more** as ethanol has very different chemical properties than petrol.

- Engines very specific to run in Flex fuel environment led to increase in cost of the engine.
- The cost of FFVs (four-wheelers) would be higher in the range of Rs 17,000 to Rs 25,000.
- The two-wheeled flex fuel vehicles would be costlier in the range of Rs 5,000 to Rs 12,000 compared to normal petrol vehicles.

GS 3 : Economy, Science and Technology, Environment

4. Post-2020 Global Biodiversity Framework

Why in News

The United Nations **Convention on Biological Diversity (CBD)** has demanded an additional \$200 billion fund flow to developing countries from various sources to manage nature through 2030.

- It is one of many demands and targets that have been set through 2030 in the official draft of a new **Global Biodiversity Framework**.

Convention on Biological Diversity (CBD)

- The **Convention on Biological Diversity (CBD)**, a **legally binding treaty** to conserve biodiversity has been in force since 1993. It has **3 main objectives**:
 - The conservation of biological diversity.
 - The sustainable use of the components of biological diversity.
 - The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.
- Nearly all countries have ratified it (notably, the **US has signed but not ratified**).
- The **CBD Secretariat is based in Montreal, Canada** and it operates under the **United Nations Environment Programme**.
- The Parties (Countries) under Convention of Biodiversity (CBD), meet at regular intervals and these meetings are called **Conference of Parties (COP)**.
- In 2000, a supplementary agreement to the Convention known as the **Cartagena Protocol on Biosafety** was adopted. It came into force on 11th September 2003.
 - The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology.

- The **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS)** was adopted in 2010 in Nagoya, Japan at COP10. It entered into force on 12th October 2014.
 - It not only applies to genetic resources that are covered by the CBD, and to the benefits arising from their utilization but also covers traditional knowledge (TK) associated with genetic resources that are covered by the CBD and the benefits arising from its utilization.
- Along with the Nagoya Protocol on Genetic Resources, the COP-10 also adopted a ten-year framework for action by all countries to save biodiversity.
- Officially known as “**Strategic Plan for Biodiversity 2011-2020**”, it provided a set of 20 ambitious yet achievable targets collectively known as the **Aichi Targets for biodiversity**.
- India enacted **Biological Diversity Act in 2002** for giving effect to the provisions of the CBD.

Key Points

- **Background:**
 - Biodiversity, and the benefits it provides, is fundamental to human well-being and a healthy planet. Despite ongoing efforts, biodiversity is deteriorating worldwide and this decline is projected to continue or worsen under business-as-usual scenarios.
 - The post-2020 global biodiversity framework builds on the **Strategic Plan for Biodiversity 2011-2020**.
 - As the **United Nations Decade on Biodiversity 2011-2020** comes to an end, **IUCN** actively supports the development of what needs to be an ambitious new global biodiversity framework.
- **Purpose:**
 - **Guiding Force:** It is a new framework that will be the **global guiding force to protect nature** and to retain its essential services for humans from 2020 to 2030.
 - **Setting Targets:** This is a global, outcome-oriented framework for the **Convention’s 196 Parties** to develop **national and regional goals and targets**, to update national strategies and action plans as needed, and to facilitate regular monitoring and review of progress at the global level.
 - **Urgent and Transformative Action:** The framework **aims to spur urgent and transformative action** by Governments and all of society to contribute to the objectives of the **Convention on Biological Diversity**, its **Protocols**, and other biodiversity related multilateral agreements, processes and instruments.

- **Capacity Building:** It aims to ensure the right capacity building of the communities/governments to take up conservation measures to meet the goals.
 - These include the contentious technology transfer to countries that don't have it currently and also a wide scientific cooperation among countries.
- **Goals and Targets:**
 - The new frameworks have **four goals to achieve by 2050.**
 - To **halt the extinction and decline of biodiversity.**
 - To **enhance and retain nature's services** to humans by conserving.
 - To **ensure fair and equitable benefits to all** from use of genetic resources.
 - To **close the gap between available financial and other means** of implementation and those necessary to achieve the 2050 Vision.
 - **2030 Action Targets:** The framework has **21 action-oriented targets** for urgent action over the decade to 2030, which includes:
 - To bring at least 30% of land and sea under the world's protected areas.
 - A **50% greater reduction in the rate of introduction of invasive alien species**, and controls or eradication of such species to eliminate or reduce their impacts.
 - **Reducing nutrients lost to the environment by at least half**, and pesticides by at least two thirds, and **eliminating the discharge of plastic waste.**
 - **Nature-based contributions to global climate change mitigation efforts** of at least 10 GtCO₂e (gigatonnes of equivalent carbon dioxide) per year, and that all mitigation and adaptation efforts avoid negative impacts on biodiversity.
 - Redirecting, repurposing, reforming or eliminating incentives harmful for biodiversity, in a just and equitable way, reducing them by at least \$US 500 billion per year.
- **Relationship with SDGs:**
 - The framework is **a fundamental contribution to the implementation of the 2030 Agenda for Sustainable Development.**
 - At the same time, progress towards the **Sustainable Development Goals (SDGs)** will help to create the conditions necessary to **implement the framework.**
- **Need of Financial Support:**
 - The framework's demand for more financial support to developing countries, also the worst victims of biodiversity losses, is the most difficult one to negotiate and achieve.

- Adequate financial resources to implement the framework are available and deployed, progressively closing the financing gap up to at least \$700 billion per year by 2030.
- The financial commitment has to increase to at least \$ 200 billion per year. This includes an additional \$10 billion per year international financial flow to developing countries.
- **Theory of Change of the Framework:**
 - The framework is built around a theory of change which recognizes that urgent policy action globally, regionally and nationally is required to transform economic, social and financial models.
 - The trends that have exacerbated biodiversity loss will stabilize in the next 10 years (by 2030) and allow for the recovery of natural ecosystems in the following 20 years, with net improvements by 2050 to achieve the Convention's vision of "living in harmony with nature by 2050".

5. Suborbital Flight

Why in News

Recently, a six person crew on **Virgin Galactic's VSS Unity spaceship** undertook a brief trip to the "edge of space" which is known as **Suborbital Flight**.

- **Sirisha Bandla, an astronaut born in India**, was a part of the crew. She was the **third woman of Indian origin** to go to space after **Kalpana Chawla and Sunita Williams**.
- **Virgin Galactic** is a British-American **spaceflight company**, operating in the United States.

Key Points

- **Suborbital Flight/Trajectory:**
 - When an **object travels at a horizontal speed of about 28,000 km/hr or more**, it **goes into orbit** once it is above the atmosphere.
 - The **satellites need to reach that threshold speed (orbital velocity)** in order to orbit Earth.
 - Such a satellite would be **accelerating towards the Earth due to gravity**, but its **horizontal movement is fast enough to offset the downward motion** so that it moves along a circular path.
 - Any object travelling **slower than 28,000 km/hr must eventually return to Earth**.

- Any object that launches to space but **does not reach sufficient horizontal velocity to stay in space falls back to Earth**. Hence they **fly in a suborbital trajectory**.
 - It means that while these **vehicles will cross the ill-defined boundary of space**, they will **not be going fast enough to stay in space** once they get there.

□ **Significance of Suborbital Flights:**

- **Increased Access:**
 - It would provide **increased flight access for design innovation** and experimental manipulation due to high projected flight rates.
- **Research:**
 - Suborbital flights will be helpful for **microgravity research**. Microgravity is the **condition in which people or objects appear to be weightless**.
 - Suborbital flights **could also be an alternative to parabolic flights** in aeroplanes that space agencies currently use to simulate **zero gravity**.
 - **Zero Gravity** or Zero-G can simply be defined as the **state or condition of weightlessness**.
- **Cost Effective:**
 - They would be **far less expensive** than carrying experiments and people to the **International Space Station**.

□ **Edge of Space/Karman Line:**

- The most widely accepted boundary of space is known as the **Karman line**. The **Fédération Aéronautique Internationale (FAI)** defines Karman Line as the altitude of 100 kilometres above Earth's mean sea level.
 - FAI is the world governing body for air sports, and also stewards definitions regarding human spaceflight.
- The Kármán line has been compared to international waters, as there are no national boundaries and human laws in force beyond the line.
- It is named after **Theodore von Karman (1881–1963)**, a Hungarian American engineer and physicist, who was active primarily in aeronautics and astronautics.
 - He was the **first person to calculate the altitude at which the atmosphere becomes too thin to support aeronautical flight** and arrived at 83.6 km himself.
- However, other organizations do not use this definition. **There is no international law defining the edge of space**, and therefore the limit of national airspace.

6. Few-Electron Bubbles in Superfluid Helium Gas

Why in News

Recently, Scientists at the **Indian Institute of Science (IISc)**, Bangalore for the first time discovered **two species of Few-Electron Bubbles (FEBs) in Superfluid Helium Gas**.

Helium

- It is a chemical element with the **symbol He and atomic number 2**. The British chemist **Sir William Ramsay** discovered the **existence of helium on Earth in 1895**.
- It is a **colourless, odourless, tasteless, non-toxic, inert, monatomic gas**, the first in the noble gas group in the periodic table.
- Its **boiling point is the lowest among all the elements**.

Electrons

- **Matter is made up of atoms**, which are the basic units of chemical elements such as hydrogen, helium or oxygen.
- Atoms are **made up of three particles**: Protons, Neutrons and Electrons.
- Hence, **electrons are the subatomic particles that orbit the nucleus of an atom**. They are generally **negative in charge** and are much **smaller than the nucleus of the atom**.

Key Points

- **Electron Bubble**:
 - An electron bubble is the **empty space created around a free electron in a cryogenic gas or liquid**, such as neon or helium. They are typically very small, about **2 nm in diameter** at atmospheric pressure.
 - An electron injected into a **superfluid** form of helium creates a **Single Electron Bubble (SEB)** – a cavity that is free of helium atoms and contains only the electron. The shape of the bubble depends on the energy state of the electron.
 - For instance, the bubble is spherical when the electron is in the ground state (i.e. state of lowest energy). There are also **multiple electron bubbles** that contain **thousands of electrons**.
 - **Superfluidity** is the **frictionless flow and other exotic behaviour observed in liquid helium at temperatures near absolute zero** ($-273.15\text{ }^{\circ}\text{C}$), and similar frictionless behaviour of electrons in a superconducting solid. In each case the **unusual behaviour arises from quantum mechanical effects**.

- **Few-Electron Bubbles:**
 - FEBS, on the other hand, are **nanometre-sized cavities in liquid helium containing just a handful of free electrons**. The number, state, and interactions between free electrons dictate the physical and chemical properties of materials.
 - FEBS form an interesting system that has both **electron-electron interaction and electron-surface interaction**.
 - FEBS were found to be **stable for at least 15 milliseconds** (quantum changes typically happen at much shorter time scales) which would enable researchers to trap and study them.
- **Significance:**
 - **Study Properties:**
 - FEBS can serve as a useful model to study how the energy states of electrons and interactions between them in a material influence its properties.
 - **Decipher Phenomenons:**
 - There are several phenomena that FEBS can help scientists decipher, such as:
 - Turbulent flows in superfluids and viscous fluids, or the flow of heat in superfluid helium.
 - Just like how **current flows without resistance in superconducting materials** at very low temperatures, **superfluid helium also conducts heat efficiently at very low temperatures.**

Prelims Practice Questions

1. With reference to Red sanders, which of the following statements is/are correct?

1. It is endemic to the Western Ghats.
2. It is put under the category of endangered species in the IUCN Red List due to overexploitation.

Options:

- a. 1 only
- b. 2 only
- c. Both
- d. None

Answer: b

Explanation:

- Red Sanders is a tree endemic to South India.
- They are found in the Tropical Dry Deciduous forest of the Palakonda and Seshachalam hill ranges of Andhra Pradesh and also found in Tamil Nadu and Karnataka.
- IUCN has classified red sanders as endangered (Assessment year: 2020).

2. With reference to Cryptogam, consider the following statements:

1. It is a plant that reproduces with the help of spores.
2. They are also called "flowerless" or "seedless plants".
3. Algae and fungi can be categorized as cryptogams.

Which of the statements given above are correct?

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

Answer : D

Explanation

- The word "**Cryptogamae**" implies 'hidden reproduction', referring to the fact that they **do not produce any reproductive structure, seed, or flower**. Thus, a

cryptogam is a plant that reproduces with the help of spores. Hence, **statement 1 is correct.**

- They are called "flowerless" or "seedless plants" or 'lower plants'. They need a moist environment to survive. Hence, **statement 2 is correct.**
- These are present in aquatic and terrestrial places. Algae, bryophytes, lichens, ferns and fungi are the best-known groups of cryptogams. Hence, **statement 3 is correct.**

3. Kalamkari painting refers to

- a. A hand-painted cotton textile in South India
- b. A handmade drawing on bamboo handicrafts in North-East India
- c. A block-painted woollen cloth in Western Himalayan region of India
- d. A hand-painted decorative silk cloth in North-Western India

Answer: a

Explanation:

Kalamkari is a type of hand-painted or block-printed cotton textile produced in Andhra Pradesh. Only natural dyes are used in Kalamkari.

4. Consider the following statements regarding the :

1. The National Tiger Conservation Authority (NTCA) was constituted under the Wildlife (Protection) Act, 1972.
2. The Project Tiger is a Centrally Sponsored Scheme administered by NTCA.

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 **National Tiger Conservation Authority (NTCA)** is a statutory body under the Ministry of Environment, Forests and Climate Change.
 - It was established in 2005 following the recommendations of the Tiger Task Force.

- It was constituted under **enabling provisions of the Wildlife (Protection) Act, 1972**, as amended in 2006, for strengthening tiger conservation, as per powers and functions assigned to it. **Hence, statement 1 is correct.**
- **Project Tiger is a Centrally Sponsored Scheme** of the Ministry of Environment, Forests and Climate Change launched in 1973 to provide central assistance to the tiger States for tiger conservation in designated tiger reserves in India.
 - The project is **administered by the National Tiger Conservation Authority (NTCA)**. **Hence, statement 2 is correct.**

5. Which of the following is/are the components of the State List under the Seventh Schedule of the Indian Constitution?

1. Banking
2. Public order
3. Police
4. Public health

Select the correct answer using the code given below:

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

Answer : D

Explanation

- There are three Lists which provide for distribution of legislative powers (under 7th Schedule to the Constitution):
 - **Union List (List I)** - It contains 98 subjects (originally 97) and comprises the subjects which are of national importance and admit of uniform laws for the whole of the country.
 - Only the Union Parliament can legislate with respect to these matters e.g. Defence, Foreign Affairs, **Banking (Entry no 45)**, Currency, Union Taxes, etc.
 - **State List (List II)** - It contains 59 subjects (originally 66) and comprises subjects of local or State interest.
 - It lies within the legislative competence of the State Legislatures, viz. **Public Order (Entry no 1)** and **Police (Entry no 2)**, **Health (Entry no 6)**, Agriculture, Forests, etc. **Hence, option D is correct.**
 - Entry no 1 and 2 of state list are

- **Concurrent List (List III)** - It contains 52 (Originally 47) with respect to which; both Union Parliament and the State Legislature have concurrent power of legislation.
 - The Concurrent List (not found in any federal Constitution) was to serve as a device to avoid excessive rigidity to a two-fold distribution.

6. Consider the following statements regarding Government Security (G-Sec):

1. The short term G-Sec is called dated securities whereas the long term G-Sec is called treasury bills.
2. In India, only the Central Government issues both treasury bills and dated securities.

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

- A Government Security or G-Sec is a tradable instrument issued by the Central Government or the State Governments.
- It acknowledges the Government's debt obligation. Such securities are **short term (usually called treasury bills**, with original maturities of less than one year- presently issued in three tenors, namely, 91 day, 182 day and 364 day) or **long term (usually called Government bonds or dated securities** with original maturity of one year or more). **Hence, statement 1 is not correct.**
- In India, the **Central Government issues both treasury bills and bonds** or dated securities **while the State Governments issue only bonds or dated securities**, which are called the State Development Loans (SDLs). **Hence, statement 2 is correct.**

Mains Practice Questions

1Q. Civil aviation is the fastest growing sector in India, but faces many challenges on different fronts. In this context, discuss the scope of, and challenges faced by civil aviation sector in India. (250 words)

Approach

- In introduction elaborate 1st statement with relevant facts and data.
- In body discuss the challenges faced by civil aviation sector, discuss scope of civil aviation sector in India and suggest ways to improve it.
- In conclusion show its importance while comparing it with other sector.

2Q. What do you understand by ethical governance and examine how is it different from good governance? (150 words)

Approach

- Define good governance and ethical governance with examples.
- Make a comparative analysis of both