

GEO IAS

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AUGUST 2021

G.S PAPER I

1. GEOGRAPHY

1.1 Earthquakes in Haiti

Why in news?

A powerful earthquake (magnitude 7.2) killed hundreds and injured thousands more in Haiti (which faces frequent earthquakes).

Where is Haiti?

- An island country located in the Caribbean Sea, on the island of Hispaniola in the Greater Antilles archipelago.
- Bordered in land by the Dominican Republic in east.
- Maritime borders with the Bahamas, Colombia, Cuba, and Jamaica.

What causes frequent quakes in Haiti?

- Haiti's **unique geology** makes it **seismically active** and prone to devastating earthquakes.
- Located near the intersection of two tectonic plates—the North American plate and the Caribbean plate.
- Multiple fault lines between those plates cut through or near the island of Hispaniola.
- The recent earthquake likely occurred along the **Enriquillo-Plantain Garden fault zone**:
 1. cuts across Haiti's south-western Tiburon Peninsula
 2. the source of many earlier big earthquakes in Haiti
- **Other reasons**
 1. High population density of 11 million people.
 2. Typical concrete and cinder block buildings designed to withstand hurricanes but are vulnerable to collapse when the ground shakes.
 3. Given the factors, it is much a natural hazard that overlaps with a vulnerable design and system, and not really a natural disaster.

1.2 Landslips in Himachal Pradesh

What is the issue?

- Himachal Pradesh faces rising instability from environmental factors such as climate change, heavy rainfall and landslides.
- The rising threat calls for a renewed approach to the developmental designs in the State.

What is the recent happening?

- Landslip/Lanslide in the Kinnaur district of Himachal Pradesh killed at least 14 people and buried several others.
- Severe catastrophe as mud, rocks and debris rained down on vehicles.
- A fortnight back, a similar disaster killed a group of tourists.

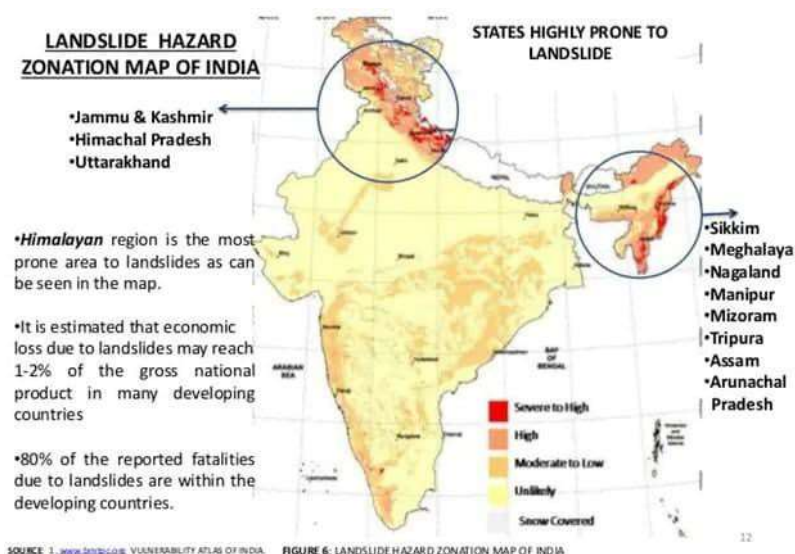
What are the recurring threats and the causes?

- **Landslips** - They have become more common.
- Seismic events threaten to increase their frequency and aggravate the impact.
- The Landslide Hazard Zonation Map of India marks over 70% of Himachal Pradesh as 'high risk' and 14% as 'severe' to 'very high risk'.

- **Earthquakes** - Mountains here are geologically young and therefore active (unstable).
- 32% of the State is categorised as a high damage risk zone for seismicity.

• **Causes -**

1. Himachal's mountain slopes experience seismicity and rain-induced stresses.
2. Heavily engineered structures such as dams and hydropower (involve rock blasting, tree felling and inundating large spaces), building roads.
3. With greater rainfall and cloudburst activity, Himachal Pradesh is bound to face greater uncertainty.



What does this call for?

- A new and redesigned development paradigm.
- Greater caution in pursuing disruptive projects, particularly hydropower.
- An updated action plan on climate change that goes beyond disaster management.
- Long-term remedial measures for the key hazards.
- Harnessing the available support among local communities for sustainable tourism and expansion of the farm-based economy, particularly apple growing.

G.S PAPER II

2. POLITY

2.1 OBC Reservation in Medical Seats

Why in news?

The Union Health Ministry has announced 27% reservation for the OBCs and 10% quota for the Economically Weaker Sections (EWS) in the All-India Quota (AIQ) scheme for UG and PG medical / dental courses from 2021-22 onwards.

What is the All-India Quota scheme?

- The All-India Quota (AIQ) scheme was introduced in 1986 under the directions of the Supreme Court.
- The aim was to provide for domicile-free merit-based opportunities to students from any State to study in a medical college located in another State.
- It comprises 15% of UG seats and 50% of PG seats surrendered by the States for admission through a central pool in government medical colleges.
- Initially, there was no reservation in the AIQ.
- The Supreme Court in 2007 introduced the reservation of 15% for SCs and 7.5% for STs in the scheme.
- Meanwhile, the Central Educational Institutions (Reservation in Admission) Act became effective in 2007.
- It provided for uniform 27% reservation to the OBCs in all the Central Educational Institutions.
- However, this reservation was not extended to the AIQ seats of State medical and dental colleges.

How will the new provision benefit?

- The OBC students from across the country shall now be able to take the benefit of the reservation in AIQ to compete for seats in any State.
- Being a Central scheme, the Central List of OBCs shall be used for this purpose.
- The decision would benefit every year nearly 1,500 OBC (Other Backward Classes) students in MBBS and 2,500 such students in postgraduation.
- Among EWS students, around 550 in MBBS and around 1,000 in postgraduation will be benefitted.
- [The reservations will apply for undergraduate (UG) and postgraduate (PG) medical / dental courses (MBBS / MD / MS / Diploma / BDS / MDS).]

Why is the move significant?

- As AIQ seats originally belonged to the States, the quota policy applicable to the respective States ought to be applied to them.
- There were OBC seats in medical institutions run by the Centre, as well as State-specific quotas in those run by the States.
- But seats given up by the States to help the Centre redistribute medical education opportunities across the country were kept out of the ambit of reservation.
- The Centre's decision to extend its 27% reservation for OBCs to all seats under the AIQ thus puts an end to this discriminatory policy.
- [In order to balance OBC interests with those of the socially advanced sections, the Centre has also decided to provide 10% of the AIQ seats to EWS candidates.]
- The decisions are almost entirely the outcome of a Madras High Court verdict.
- The Madras HC, in July 2020, held that there was no legal impediment to OBC reservation.
- But the policy varied from State to State, and so it left it to the Centre to decide the modalities for quotas from the current academic year (2021).
- Credits also go to the efforts of the DMK party in Tamil Nadu that approached the court with the demand.

2.2 Economic Criterion & Creamy Layer

Why in news?

The Supreme Court (SC) has clarified that economic criterion alone cannot be used to classify a member of a Backward Class as belonging to the 'creamy layer'.

What is the creamy layer concept?

- Based on the recommendation of Second Backward Classes Commission (Mandal Commission), the government had notified 27% reservation for Socially and Educationally Backward Classes (SEBCs).
- Indira Sawhney case, 1992 upheld the 27% reservation for OBCs.
- But it directed the exclusion of those falling within the 'creamy layer' from receiving quota benefits.
- It had mentioned the following criteria (not just economic) for exclusion from quota benefits:
 1. Children of high-ranking constitutional functionaries,
 2. Employees of a certain rank in the Union and State governments
 3. Those affluent enough to employ others
 4. Those with significant property and agricultural holdings
- Added to these was the annual income criterion.

Creamy layer denotes the relatively forward, socially and educationally advanced members within the OBC. The term "creamy layer" was introduced by Sattanathan Commission in 1971.

What is the present case about?

- The SC ruling is in relation to a 2016 Haryana government notification.
- The notification mentioned monetary income of Rs.6 lakh as the only criterion to identify whether a family belongs to the creamy layer.
- The Supreme Court has struck down this, stating that income cannot be the sole basis for deciding creamy layer. It has directed the State to issue fresh notifications.

What is the significance of the case?

- The Constitution permitted special provisions in favour of ‘socially and educationally backward classes’ through the 1st Amendment Act, 1951.
- The Indra Sawhney judgement, though clarified on the various criteria, is being used as a reference to bring in the economic criterion into reservations.
- Also, the 103rd Constitution Amendment that brought in 10% reservation for the ‘economically weaker sections’ (EWS) has significantly altered the affirmative action programme.
- [The current income ceiling is Rs.8 lakh per annum for availing of both OBC and EWS quotas. This is again questionable as the size of the respective quotas vary.]
- Given these, the SC judgment now gains significance as it clarifies that the creamy layer would be identified only through a mix of social, economic and other factors, [and not merely economic].

2.3 Collegium Recommendations

Why in news?

For the first time ever, the Supreme Court Collegium led by the Chief Justice of India (CJI) has recommended as many as 9 persons at one go to be appointed as Supreme Court judges.

What is the collegium?

- Currently, the Supreme Court of India comprises the CJI and 30 other Judges (totally 31).
- The Constitution mandated consultation by President with the CJI for appointments and transfers of judges.
- The collegium is an evolved model in this –consultation process, brought in after various Supreme Court judgements in three ‘Judges Cases’. Click [here](#) to know more on the appointment system.

Article 124 - Appointment of SC judges should be made by the President after consultation with such judges of the HCs and the SC as the President may deem necessary (optional). The CJI is to be consulted (mandatory) in all appointments, except his or her own.

Article 217 - HC judges should be appointed by the President after consultation with the CJI and the Governor of the state. The Chief Justice of the HC concerned too should be consulted.

Article 142 (1) allows the Supreme Court to pass any order necessary to do “**complete justice**” in any case.

- The collegium consists of the CJI who heads it and 4 senior-most judges of the Supreme Court.
- In case of difference of opinion, the majority view will prevail.

Why is the current selection laudable?

- If the 9 judges are appointed, barring one vacancy (which arose after the Collegium met), all the vacancies in the Supreme Court will be filled up.
- The selections break the 22-month-long impasse, as no consensus could emerge within the Collegium even as vacancies remained unfilled
- Significantly, the recommendations of the collegium include -
 1. three women judges, with one of them having a chance to get to be the CJI

2. a judge belonging to the Scheduled Caste
 3. a judge from a backward community
- Also, the 9 selected persons belong to 9 different States (Kerala, TN, Karnataka, Andhra Pradesh, Maharashtra, MP, UP, Delhi and Gujarat)
 - Notably, many of those selected have distinguished records of upholding citizens' freedoms and public interest.
 - Reportedly, the selection process, a complex one, was concluded in the first ever formal meeting of the Collegium.
 - The current CJI, Justice N.V. Ramana, being the first among the equals, deserves credit for taking along the members and building consensus for selecting as many as 9 judges.

What are the parameters to be considered?

- India is perhaps the only country where the judges themselves select judges to the higher judiciary.
- So, members of the Collegium have to take extra care to ensure that -
 1. the process of selection remains transparent
 2. the suitability of the persons selected gets the highest level of approbation (approval/acceptance)
- The essence of the norms to be followed in judicial appointments is a judicious blend of –
 1. Merit /the ability to deliver complete justice
 2. Seniority
 3. Equal opportunities to all classes of people to preserve the interests of the marginalised and deprived sections of society, women, religions, regions and communities

2.4 Delhi High Court on 'Right to be Forgotten'

Why in news?

The Delhi High Court, in a recent case, upheld the view that the –Right to Privacy¹ includes the –Right to be Forgotten¹ and the –Right to be Left Alone¹.

What is the case on?

- The court's order came in response to a suit filed by a Bengali actor.
- Some of the demonstrational videos of her that did not go for streaming are in circulation in the internet.
- She has not permitted even the producer of the videos to publish them.
- The videos are being portrayed in a manner that infringes her privacy.
- Earlier, Ashutosh Kaushik who won a reality TV show made a plea saying that his videos, photographs and articles etc. be removed from the internet citing his –Right to be Forgotten¹.

Right to be forgotten or the right to erasure - The right to have personal information removed from the Internet and other directories.

Right to be left alone - The State or the society will not interfere in the individual choices of a person so long as they do not cause harm to others. State intrusion is allowed only if necessitated by a just, reasonable, and fair law.

What are the Court's remarks?

- The Court has already held that –right to privacy¹ includes the right to be forgotten and the right to be left alone as –inherent aspects¹.
- Explicit videos that are being circulated have a clear and immediate impact on the reputation of the person seen in the videos.
- The court thus called for protection of the plaintiff from invasion of her privacy on account of such publication/transmission of the videos.

How legally sound is the 'Right to be Forgotten' in India?

- **Fundamental right** - In 2017, the [Right to Privacy](#) was declared a fundamental right by the Supreme Court in its landmark verdict.

- It held that the right to privacy is protected as an intrinsic part of the right to life and personal liberty under Article 21 of the Constitution.
- It is thus part of the freedoms guaranteed by Part III of the Constitution.
- **Section 20 of the Personal Data Protection Bill** - The data principal shall have the right to restrict or prevent the continuing disclosure of his/her personal data by a data fiduciary where such disclosure -
 1. has served the purpose for which it was collected or is no longer necessary for the purpose;
 2. was made with the consent of the data principal under section 11 and such consent has since been withdrawn; or
 3. was made contrary to the provisions of this Act or any other law for the time being in force.

2.5 SC Order on Govt's' Power to Withdraw Cases Against MPs-MLAs

Why in news?

The Supreme Court has spelled out limitations on governments' power to withdraw cases against MPs-MLAs.

What was the judgment?

- **Case** - In August 2020, Karnataka government decided to drop charges in 61 criminal cases, several of which involved elected representatives and ministers.
- **Karnataka HC** restrained the state government from acting on that order.
- The High Court rejected on the ground that the courts are duty-bound to assess whether prima facie a case is made or not.
- **Principles behind HC's order**
 1. Due process to be followed in criminal cases involving members of the political class.
 2. Public prosecutors had the right to disagree when governments invoked Article 21 of the CrPC to withdraw criminal cases.
- SC endorsed the HC's stance in restoring **public prosecutor's autonomy** and has held the following limitations
 1. Power to withdraw cases "cannot be used for political purposes."
 2. No prosecution against a sitting or former MP/MLA shall be withdrawn without the leave of the high court.
 3. The court can scrutinize the nature and gravity of the offense to determine if the withdrawal of the prosecution would subserve the administration of justice.

Directive - Political parties to publicly disclose the criminal antecedents of candidates put up by them in elections to Parliament and state assemblies.

Why is the case significant?

- Governments often overlook the primacy of public interest in favoring members of ruling parties or alliances.
- Money and muscle power in politics continue to undermine democracy.
- Various governments in the States and Centre have failed to abide by the SC's 2020 directive.
- This directive enables voters to have all necessary information, for them to exercise their right to franchise in an effective manner.
- **Recommendation** - Addressing the –malignancy of criminalization of politics and ensuring cleaner politics call for far-reaching changes in the system.

2.6 Constitution (Scheduled Tribes) Order (Amendment) Bill 2021

Why in news?

- Parliament has passed the Constitution (Scheduled Tribes) Order (Amendment) Bill 2021.
- The Bill seeks to amend the nomenclature of certain tribes from Arunachal Pradesh mentioned in the Constitution (Scheduled Tribes) Order, 1950.

What are the key features?

- Part-XVIII of the 1950 Order lists 16 tribes of Arunachal which are - Abor, Aka, Apatani, Nyishi, Galong, Khampti, Khowa, Mishmi [Idu, Taroon], Momba, Any Naga tribes, Sherdukpen, Singpho, Hrusso, Tagin, Khamba and Adi.
- The Bill -
 1. modifies Part-XVIII of the Schedule to the Constitution (Scheduled Tribes) Order, 1950.
 2. corrects the names of tribes spelt incorrectly
 3. adds names of a few tribes that were either named ambiguously or had only their parent group named.
- **The five key changes are:**
 1. Deleting 'Abor' (tribe), because 'Adi' tribe in the list is same as 'Abor'
 2. Changing 'Khampti' to 'Tai Khamti'
 3. Including 'Mishmi-Kaman (Miju Mishmi)', 'Idu (Mishmi)' and 'Taraon (Digaru Mishmi)' in lieu of Mishmi [Idu, Taroon]
 4. Including 'Monpa', 'Memba', 'Sartang', 'Sajolang (Miji)' in place of 'Momba'
 5. Replacing 'Any Naga Tribes' with names of four tribes: 'Nocte', 'Tangsa', 'Tutsa', and 'Wancho'.

What is the need?

- Officially listed names of the tribes are out of – colonial interpretations.
- But many other tribes, sub-tribes exist with diversity in terms of language or culture.
- E.g., There are 3 groups of Mishmis - Idu, Kaman and Taraon - mentioned just as Mishmi.
- Similarly, Nocte, Tangsa, Tutsa and Wancho, mentioned as – other Naga tribes have their own nomenclature and are culturally diverse.
- This creates problems while applying for central jobs, as individual tribes are not recognised.
- So self-identification and indigenous nomenclature of tribes has been a long-standing demand.

Who is opposing and why?

- The term 'Any Naga Tribe' has been removed by the Bill, replacing it with four different tribes.
- So, opposition from the Naga separatist group NSCN(IM) which aims at creating Nagalim or greater Nagaland (a territory that comprises all Naga-inhabited areas around Nagaland, including neighbouring states).
- But the change just gives them their individual identity through names, still within the larger Naga identity.

3. GOVERNMENT ACTS & POLICIES

3.1 Tribunals Reforms Bill, 2021

Why in news?

The Lok Sabha recently passed the Tribunals Reforms Bill, 2021 to dissolve at least eight tribunals.

What is the Bill about?

- It dissolves 8 tribunals that functioned as appellate bodies to hear disputes under various statutes, and
- Transfer their functions to existing judicial forums such as a civil court or a High Court
- The Chairpersons and Members of the tribunal being abolished shall cease to hold office, with compensation equivalent to 3 months' pay and allowances for their premature termination.

What are the key provisions?

- It amended **Finance Act, 2017** that merged the tribunals based on domain
- Earlier, the Finance Act, 2017 had empowered the central government to notify rules on search-cum-selection committees and term of office.

EIGHT TRIBUNALS DISSOLVED

Act under which Tribunal was set up	Abolished tribunal	Where disputes are heard after abolition
The Cinematograph Act, 1952	Film Certification Appellate Tribunal	High Court
The Trade Marks Act, 1999	Intellectual Property Appellate Board	High Court
The Copyright Act, 1957	Intellectual Property Appellate Board	Commercial Division of High Court
The Customs Act, 1962	Customs, Excise and Service Tax Appellate Tribunal	High Court
The Patents Act, 1970	Intellectual Property Appellate Board	High Court
The Airports Authority of India Act, 1994	Airports Appellate Tribunal	<div> <div></div> Central government (disposal of properties on airport premises left by unauthorised occupants) </div> <div> <div></div> High Court (appeals against eviction orders) </div>
The Control of National Highways (Land & Traffic) Act, 2002	The National Highways Tribunal	Civil Court
The Geographical Indications of Goods (Registration and Protection) Act, 1999	Intellectual Property Appellate Board	High Court

- Now, these provisions have been included in the Bill itself.
- However, the qualification of members and other terms and conditions of service will still be notified by the central government.
- The Chairperson and Members of the Tribunals will be appointed by the central government on the recommendation of a **Search-cum-Selection Committee** that will consist of:
 1. CJI, or a Supreme Court Judge nominated by him, as the Chairperson (with casting vote),
 2. two Secretaries nominated by the central government,
 3. the sitting or outgoing Chairperson, or a retired Supreme Court Judge, or a retired Chief Justice of a High Court, and
 4. the Secretary of the Ministry under which the Tribunal is constituted (with no voting right).
- The central government must decide on the recommendations of selection committees preferably within 3 months.
- **State administrative tribunals** will have separate search-cum-selection committees which will consist of:
 1. the Chief Justice of the High Court of the concerned state, as the Chairperson (with a casting vote),
 2. the Chief Secretary of the state government and the Chairperson of the Public Service Commission of the concerned state,
 3. the sitting or outgoing Chairperson, or a retired High Court Judge, and
 4. the Secretary or Principal Secretary of the state's general administrative department (with no voting right).
- Also, the central government shall, on the recommendation of the Search-cum-Selection Committee, remove from office any Chairperson or a Member, who-
 1. has been insolvent, or convicted of an offence involving moral turpitude; or
 2. has become physically/mentally incapable
 3. has acquired such financial or other interest, or abused the official position compromising public interest

- **Age criterion and tenure of office -**

1. Four-year term of office for Chairperson and Members
 2. Upper age limit of 70 years for the Chairperson, and 67 years for members
 3. Minimum age requirement of 50 years for appointment of a chairperson or a member
- The Supreme Court had earlier struck down the Minimum age and the four-year tenure provisions.
 - The Court had suggested that advocates with a minimum of 10 years of experience should be entitled to be appointed as members.

Why did government dissolve the tribunals?

- Delay in justice delivery in Tribunals in several sectors
- Cases might get a faster hearing and disposal if taken to High Courts
- Considerable expense to the exchequer in running Tribunals
- Ensuring greater accountability on the functioning of the tribunals

What are the concerns?

- Questions arise over the independence of the Tribunals (given the changed new composition & government's influence in it)
- Lack of specialization in regular courts, affecting the decision-making process. E.g., the Film Certification Appellate Tribunal required expertise in art and cinema
- [Vacancies](#) in existing Tribunals.
- **Legislature-Judiciary** - Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance, 2021 that the bill replaces was earlier struck down by the Supreme Court.
- Legislations overriding the court's directions, in effect, undermine the Rule of Law.
- So, the Court has now challenged the government to produce materials justifying the reasons for introducing the new Tribunal Reforms Bill.

3.2 Features of the National Education Policy

Why in news?

The Delhi University (DU) has approved a 4-year undergraduate (UG) programme as part of the reforms under the new [National Education Policy](#).

What are the key features of the NEP?

Multi-disciplinarity

- Higher education in India is focused on producing disciplinary experts.
- But the new NEP proposes to break disciplinary boundaries.
- E.g., B Tech students, beyond their core subject limits, will have significant component of arts and humanities. And arts and humanities students will learn more science too.

4-year Undergrad Programme

- UG programmes in India usually are for 3 years, except for professional degrees (B Tech & MBBS).
- NEP proposes to –adjust the length of the programmes to accommodate different subjects along with the chosen major and minor subjects.
- 4-year UG program is thus a means to achieve multidisciplinary in education.
- However, the student will have the option to leave the program midway.

Academic Bank of Credit (ABC)

- Higher education institutions will digitally deposit credits earned by students for courses they studied; prior learning represented in course units.

- A student's deposit of credits in the ABC helps her move laterally from one higher education institution to another, if needed.
- Credits would also include that for courses or projects in areas such as community engagement and service, environmental education, etc.
- So, the ABC is expected to aid the multiple entry and exit system as well as multidisciplinary in higher education.

Regional languages

- Promoting Indian languages, arts and culture through education.
- Higher education institutions are recommended to adopt regional languages as the medium of instruction. (Click [here](#) to know more)
- This will help increase the Gross Enrolment Ratio in higher education and add to its inclusiveness.

National Entrance Test

- A single university entrance exam conducted by the National Testing Agency, instead of the multiple entrance tests that students now face.
- The high quality, range, and flexibility of the NTA testing services will enable most universities (optional) to

Quitting after the first year - A Certificate

After the second year - A diploma

After the third year - A Bachelor's degree

Completing the 4 years programme - Bachelor's degree "with Research" if the student completes "a rigorous research project" in her major area(s) of study.

use the NTA assessments as the basis for student admissions.

3.3 e-RUPI & Welfare Schemes

What is the issue?

The recently launched e-RUPI payment facility has potential features for better implementation and governance of the welfare schemes of the country.

What is e-RUPI and how does it work?

e-RUPI is a contactless digital prepaid payment utility, built on the UPI (Unified Payments Interface) platform.

- The payments can be made via a QR code (smartphone users) or an SMS string based e-voucher (non-smartphone users).
- e-RUPI would be shared with the beneficiaries **for a specific purpose** or activity by organizations or Government.
- The users will be able to redeem the voucher without a card, digital payments app or internet banking access.
- A verification code received by the beneficiary is shared with the service provider to authenticate and authorise the transaction.
- The entire transaction is relatively faster and at the same time reliable, as the required amount is already stored in the voucher.
- 14 leading banks have already integrated it with their systems.

Why is e-RUPI a better option?

- A one-to-many payments facilitator.
- Brings the ease and simplicity of UPI to the social security platform of DBT (Direct Benefit Transfer).
- Traditionally, the non-smartphone population has struggled to adopt digital payments. e-RUPI enables them to gradually use and accept digital methods.
- The utility of cash transfers to guarantee food security or generate sustainable livelihoods compared to PDS or MGNREGA is doubted.

- But e-RUPI could break the policy logjam by making cash transfers purpose- and person-specific.
- It frees the beneficiaries from dependence on bank accounts, and ensures transparency.

What are the potential platforms for its use?

Public sector

- Vaccines - Facilitate cashless service at paid Covid vaccination centres (CVCs). E.g., corporates and philanthropies can buy services in bulk to vaccinate employees and those in need.
- PDS - The present high overhead costs, leakages, exclusion causes inefficiency.
- A food-specific e-RUPI voucher will allow beneficiaries to buy rations from an outlet of their choice.
- Fertiliser subsidies
- Current difficulties -
 - i. Creating an IT infrastructure; Managing nearly 3,00,000 fertiliser sale points
 - ii. Collapse of dealer network due to liquidity squeeze in the event of subsidy payments getting delayed
 - iii. Complex system of timely credit of subsidy into an estimated 129 million Aadhaar-linked bank accounts of farm households.
- Using e-RUPI, Farmers can buy fertiliser at nominal prices with direct credit of the subsidy amount into the authorised dealers' account.
- School voucher programmes - Vouchers for identified students to pay school fees and expenses.
- Basic income support - Rapid distribution of food and cash vouchers at large scale during times such as the pandemic or a natural calamity.
- Ayushman Bharat healthcare initiative - e-RUPI vouchers of designated value tenable at empanelled healthcare facilities.



Private sector

- Disbursing non-cash benefits to employees and supporting CSR programmes.
- Individuals could use it for gifting.

What should be done?

- Light regulation and the opening of e-RUPI to competition.
- Allowing banks, small and big, NBFCs, non-bank PPI (Prepaid Payment Instruments) issuers, and telcos to adopt and issue e-RUPI.

4. SOCIAL JUSTICE

4.1 Uncounted Deaths of Sanitation Workers

What is the issue?

In 2021, the government has no accurate record of the number of sanitation workers (including manual scavengers), nor their approximate death count.

What do recent estimates show?

- In the last 50 years over 1 million uncounted deaths of sanitation workers estimated in India.
- Deaths in the last 5 years and their causes

- 10,000 people - Multiple chronic conditions emanating from manual scavenging and cleaning insanitary latrines.
- Over 600 people - Hazardous cleaning of sewer and septic tanks, with around 18-20% unreported cases in both these categories.
- Many deaths occurred during the peak of the pandemic's second wave, as sanitation workers handled dead bodies in semi-urban and rural areas and on the banks of the Ganga.

What are the realities and concerns?

Unmarried girls below 18 years - Sex, with or without her consent, is statutory rape under Section 375 of IPC

Within marriage - Exception 2 to Section 375 earlier gave the husband of a girl child (15-18 years) blanket liberty to have non-consensual sexual intercourse with her.

In 2017, the Supreme Court narrowed this provision and held that sexual intercourse by a man with his wife, who is below 18 years of age is rape. But Sec 375 still does not criminalise marital rape of women above 18 years.

Protection of Women from Domestic Violence Act (2005) regards marital rape as a form of domestic violence and provides for a lesser jail term than non-marital rape. It is the only way of penalizing marital rape in India, and it is a civil remedy and not a criminal action

- The sub-castes of the Dalit community are largely engaged in all these unidentified categories of sanitation work, including manual scavenging.
- So far, in its identification-related surveys, the government has merely reached –
 - i. 5% of the total population of manual scavengers
 - ii. 20% of the total area of India
- **Causes of Failure**
 - i. Inadequacy of identification of manual scavengers by urban and rural local bodies
 - ii. Failure to comply with Prohibition of Employment as Manual Scavengers and Their Rehabilitation (PEMSR) Act by District magistrates
 - iii. Failure in exhibiting appropriate lists of examination of sanitation infrastructures by Appointed Inspectors
- Safety gears and devices promised to scavengers under the Safaimitra Suraksha Challenge do not reach them.
- When workers identify themselves as manual scavengers, they are often harassed with death threats by local authorities.
- Non-compliance with the Act is hardly ever penalised.
- Compensation and promises of one-time case assistance are only provided in around 40% of –all recorded casesl.

What should be done?

- Estimating the actual number of deaths of sanitation workers (manual scavengers or other categories).
- Highlighting the lapses in the implementation of the PEMSAR Act and government interventions, and rectifying them.

4.2 Marital Rape & Indian Law

Why in news?

The Chhattisgarh High Court has discharged a man from facing trial for allegedly raping his wife, citing exception under **Section 375** of the Indian Penal Code.

What is the case on?

- Based on the allegations of his wife, charges against the husband were framed by a trial court under:

1. IPC Section 376 (rape)
 2. IPC Section 377 (carnal intercourse against the order of nature)
 3. IPC Section 498A (cruelty towards wife by husband or his relatives)
- While, the High Court upheld charges under Sections 498A and 377, it discharged the husband under Section 376 i.e rape.
 - The Exception 2 to Section 375 (the definition of rape) was cited, under which sexual intercourse by a man with his own wife (above 18 years) would not amount to the offence of rape.

Why is the marital rape exception contentious?

Inconsistent with other sexual offenses

- A husband may be tried for the following offences:
 1. sexual harassment, molestation, voyeurism, and forcible disrobing (in the same way as any other man)
 2. even be tried for rape, if he is separated from his wife (though not divorced) - Under Section 376B
 3. non-consensual penetrative sexual interactions other than penile-vaginal penetration with his wife - Under Section 377
- The element of consensus was included in Sec 377 after the [Supreme Court judgement](#) in Navtej Singh Johar v. Union of India, 2018.
- In effect, forcible or non-consensual penetrative penile-vaginal intercourse is protected from criminal prosecution, when performed by a husband with his wife.

Liberal and progressive values of Indian Constitution

- Individual autonomy, dignity & gender equality are enshrined in fundamental rights such as Article 21 & Article 14.
- In this light, in Joseph Shine v. Union of India (2018), the Supreme Court held that the criminalising [adultery was unconstitutional](#) as it treats the wife as the husband's property.
- But exception to marital rape holds that a wife's right to personal and sexual autonomy, bodily integrity & dignity are surrendered to his husband.
- It is also violative of India's obligations under the Convention on the Elimination of All Forms of Discrimination against Women (advocates against women's subordination to men within marriage).

Institution of marriage

- SC had earlier observed, -Marriage is not institutional but personal – nothing can destroy the 'institution' of marriage except a statute that makes marriage illegal and punishable.
- Hence recognising marital rape as a criminal offence would not __destroy the institution of marriage'

Legal challenges

- It is argued that since marriage is a sexual relationship, determining the validity of marital rape allegations would be difficult.
- But **marriage does not signify perpetual sexual consent.**
- The determination of consent or lack thereof in the context of a sexual interaction within marriage would be the same as in any other context.
- E.g., through physical evidence and testimonies

5. HEALTH

5.1 State of Food Security and Nutrition Report

What is the issue?

- The latest edition of the State of Food Security and Nutrition in the World (SOFI) report was recently released jointly by five UN organisations.

- It highlights the shortfalls on part of the government to handle the pandemic, which has led to increase in the prevalence of hunger and food insecurity.

What are the highlights of the report?

- India was home to the largest number of undernourished people in the world even before the Covid-19 pandemic.
- The prevalence of moderate to severe food insecurity in India rose by about 6.8 percentage points in 2018-20.
- In absolute terms, the number of persons facing moderate to severe food insecurity has increased by about 9.7 crore since the outbreak of Covid.
- Ironically, this happened when the government had an unprecedented 100 million tonnes of food grains in its godowns.
- This is larger than the food stocks of any other country.
- To state, the country with the largest stock of grain in the world [120 million tonnes as of July 1, 2021] accounts for a quarter of the world's food-insecure population.
- Globally, in 2020, over 237 crore people were grappling with food insecurity, which is an increase of about 32 crores from 2019.
- South Asia alone accounts for 36% of global food insecurity.

What are the key indicators used?

- Estimates on food insecurity presented in the SOFI report are based on two globally-accepted indicators of food insecurity:
 1. The Prevalence of Undernourishment (PoU)
 2. The Prevalence of Moderate and Severe Food Insecurity (PMSFI)
- **PoU** - The PoU estimates the proportion of people suffering from chronic deficiency of calories.
- The PoU estimates are based on estimates of per-capita supply of food and distributional parameters estimated using the national consumption surveys.
- **PMSFI** - On the other hand, the PMSFI is a more recently developed experience-based indicator.
- The PMSFI estimates are based on data collected through surveys that attempt to capture people's experiences of food insecurity.
- These include eating less, modifying diet to eat cheaper food, skipping meals, and eating less than adequate food because of lack of money or other resources.
- Since the outbreak of the pandemic, the Indian government has not undertaken any official assessment of food insecurity in the country.
- So, the PMSFI estimates are the only national-level valid and reliable estimates available on the pandemic's impact on food insecurity in India.
- PMSFI estimates show that there were about 43 crores of moderate to severe food-insecure people in India in 2019.
- As a result of the pandemic-related disruptions, this increased to 52 crores in one year.
- In terms of prevalence rates, moderate to severe food insecurity increased from about 31.6% in 2019 to 38.4% in 2021.

What are the reasons behind?

- Despite being self-sufficient in the production of major food commodities, India faces problems of hunger and food insecurity.
- This is because of widespread economic distress, high unemployment and high levels of inequality.
- A large proportion of the poor is dependent on the informal economy in which incomes are too low and uncertain.
- They do not have assured access to adequate and nutritious food.
- Unemployment rates too have risen sharply over the last few years.

- High (and fluctuating) food prices, shrinking public investment and the economic slowdown have added to the distress among working classes and the peasantry.
- These longstanding problems were aggravated in the recent year because of lack of preparation to deal with the pandemic.

What is needed now?

- With almost 120 million tonnes of grain currently lying with the government, it requires almost no additional resources.
- The need now is for the government to establish systems for regular monitoring of the food security situation in the country.
- It should also consider universalising access to the public distribution system, at least during the pandemic.

6. INDIA & ITS NEIGHBORHOOD

6.1 Gilgit-Baltistan Dispute

Why in news?

Pakistan's Law and Justice Ministry has finalised a draft legislation to incorporate Gilgit-Baltistan, the region known before 2009 as Northern Areas, as a province of the country.

Why is it a concern for India?

- India has for long asserted that Gilgit-Baltistan is an integral part of India.
- It is claimed by virtue of the legal, complete and irrevocable accession of Jammu & Kashmir to the Union of India in 1947.
- The area's strategic importance for India has particularly increased in light of the China-Pakistan Economic Corridor (CPEC) agreement.
- Under the CPEC, China is investing hugely to develop the Gilgit-Baltistan area as part of its Belt and Road Initiative.
- Suggestively, Pakistan's decision is under pressure from China to make clear the Gilgit-Baltistan's status so that it does not undermine the legality of its projects there.

How did the dispute originate?

- Gilgit was part of the princely state of Jammu & Kashmir, but was ruled directly by the British.
- When Hari Singh (the Hindu ruler of the Muslim-majority J&K state) acceded to India in October, 1947, the Gilgit Scouts rose in rebellion, led by their British commander.
- The Gilgit Scouts also moved to take over Baltistan, which was then part of Ladakh, and captured Skardu, Kargil and Dras.
- In battles thereafter, Indian forces retook Kargil and Dras in August 1948.
- Before that, in November, 1947, a political outfit called the Revolutionary Council of Gilgit-Baltistan had proclaimed the independent state of Gilgit-Baltistan.
- It also declared it was acceding to Pakistan.
- Pakistan accepted the accession only to the extent of full administrative control.
- It chose to govern it directly under the Frontier Crimes Regulation, a law devised by the British to keep control of the restive tribal areas of the northwest.
- Following the India-Pakistan ceasefire of January, 1949, Pakistan entered into an agreement with the -provisional government of -Azad Jammu & Kashmir to take over its defence and foreign affairs.
- [The AJK covers the parts that had been occupied by Pakistani troops and irregulars.]
- Under this agreement, the -AJK government also ceded the administration of Gilgit-Baltistan to Pakistan.



What is unique with the Gilgit-Baltistan area?

- In 1974, Pakistan adopted its first full-fledged civilian Constitution, which lists four provinces - Punjab, Sindh, Balochistan, Khyber Pakhtunkhwa.
- The Pakistan-Occupied Kashmir (PoK) and Gilgit-Baltistan were not incorporated as provinces.
- [This was because Pakistan wanted the resolution of the Kashmir issue to be in accordance with UN resolutions that called for a plebiscite.]
- In 1975, PoK got its own Constitution, making it a self-governed autonomous territory and the people having rights and freedoms.
- However, Northern Areas continued to be administered directly by Islamabad (the Frontier Crimes Regulation was discontinued in 1997 but repealed only in 2018).
- The people of the minority Shia-dominated 'Northern Areas' did not have any political representation.
- They were considered Pakistani, but remained outside the ambit of constitutional protections available to those in other provinces and PoK.

What were the later administrative arrangements?

- In the 2000s, Pakistan began considering changes to its administrative arrangements in the Northern Areas.
- The post-9/11 dynamics of the region and increasing Chinese strategic moves necessitated this.
- In 2009, Pakistan brought in the Gilgit-Baltistan (Empowerment and Self-Governance) Order, 2009.
- It replaced the Northern Areas Legislative Council (NALC) with the Legislative Assembly and the Northern Areas got back the name of Gilgit-Baltistan.

What are the recent developments?

- A draft legislation for making Gilgit-Baltistan a province has been finalised as the 26th Constitutional Amendment Bill of Pakistan.
- Given its status as part of the unresolved Kashmir issue, Gilgit-Baltistan is expected to be given provisional provincial status.
- A separate set of amendments would be introduced to give Gilgit-Baltistan representation in Pakistan's parliament, besides establishment of the Assembly.

6.2 India-Afghan Relations after Taliban Takeover

What is the issue?

With the [Taliban takeover of Afghanistan](#), here is what India's response should be, and the challenges and opportunities therein.

What is the response so far?

- The U.S. and European countries relocated their diplomatic outposts to the Kabul airport where Taliban control is lesser.
- Russia, China and Iran decided not to vacate their embassies there.
- The Indian government is **completely evacuating** Indian nationals in Afghanistan, including the entire embassy and security personnel.

Is complete evacuation by India a wise option?

- India had undertaken evacuations during the 1990s too when the Taliban first came to power.
- But the presence of Indian nationals was not as large and Indian stakes in Afghanistan were not as deeply rooted as it is now.
- Since 2001, India has built considerable interests in Afghanistan:
 1. Contributed to major infrastructure and development projects.
 2. Helped in scripting the Afghan Constitution and conduct of elections.
 3. Enabled the training and education of the next generation of officials, soldiers and professionals.
- The decision to pull up all stakes, despite such significant investments made in the past, raise concerns.

How much has India invested in Afghanistan?

- The 2011 India-Afghanistan Strategic Partnership Agreement recommitted Indian assistance to help rebuild Afghanistan's infrastructure.
- Unlike in other countries where India's infrastructure projects have barely started, it has delivered in Afghanistan.
- India's development assistance is now estimated to be worth well over \$3 billion.
- Bilateral trade is now worth \$1 billion , with exports from India worth approximately \$900 million.

Salma Dam - 42MW hydropower and irrigation project also known as the Afghan-India Friendship Dam.

Zaranj-Delaram Highway - 218-km highway built by BRO goes along the Khash Rud river. With Pakistan denying access, the highway provides an alternative route into landlocked Afghanistan through Iran's Chabahar port.

Stor Palace - restored the aPalace in Kabul, originally built in the late 19th century, which was the setting for the 1919 Rawalpindi Agreement by which Afghanistan became an independent country

Other Projects - Parliament buildings, 220kV DC transmission line, reconstruction of a children's hospital, 400 buses and 200 mini-buses for urban transportation, Air India aircrafts, Sulabh toilet blocks etc

Afghan exports - fresh and dried fruit through the Wagah border

Indian exports - pharmaceuticals, medical equipment, computers and related materials, cement, and sugar through government-to-government contracts with Indian companies

Projects

Why should India strengthen the relations?

- India has huge investments and stakes there.
- India should make use of the love that the Afghans have for India while Pakistan is not very popular.
- The Taliban of 2021 seems to be relatively mature and liberal than the former.
 1. It is holding talks with former Afghanistan President Hamid Karzai.
 2. Negotiations are under way for a more inclusive coalition, including several former leaders of Afghanistan.



WHAT IS AT STAKE?

● The Zaranj-Delaram Highway project, estimated to cost US\$134 million, is possibly the most important for both India and Afghanistan

● Power transmission lines from the Uzbek border to Kabul over the Hindu Kush mountains. The lines are operated by the multi-country, multi-agency North East Power System (NEPS)



● Salma Dam, now called the **Afghan-India Friendship Dam**, on the Hari Rud that produces 42 MW of power and irrigates 75,000 hectares of land

What are the risks involved?

- Taliban's Pakistan support is a particular security concern.
- Groups such as the LeT and JeM could use Afghanistan as a staging base for terror attacks in India.

What lies ahead for the government?

- Explain how it will approach the new regime in Afghanistan.
- Clarify its stance on Afghan people/refugees whose lives are in danger.
- A more open, liberalised visa policy, and more swift processing of the newly launched special –e-Emergency X-Misc/ visas.
- Retain traditional and historic interests in Afghanistan and its people, despite the adverse events there.
- In all, India should adopt a –wait and watch/ mode and be in no hurry either to recognise or dismiss the new Taliban regime.

“e-Emergency X-Misc” visa is a special category of electronic visa introduced by India to fast-track urgent applications for entry to India (for those who are not covered in the available categories but need to visit India urgently due to an emergency.) It has been introduced especially for Afghans as the situation worsens after the Taliban takeover.

7. INTERNATIONAL ISSUES

7.1 All about Taliban Takeover of Afghanistan

Why in news?

With withdrawal of the U.S. forces, the Taliban took control of Afghanistan's capital Kabul, declaring end of war.

What led to the birth of the Taliban?

Taliban means –students/ in the Pashto language.

- Soviet invaded Afghanistan in 1979.
- –Mujahideen/ fighters (separatist group), with the U.S.'s support, repelled Soviet forces in the 1980s.
- Soviet withdrew in 1989 and the government collapse.
- Subsequently civil war erupted for control of the country.
- Taliban was founded in 1994 by Mullah Mohammad Omar, a local imam in Kandahar, as a faction for gaining control.
- Afghans were weary of the mujahideen's excesses and infighting.
- Taliban rose to popularity due to successfully curbing corruption & lawlessness, making the roads and providing safety for commerce.
- Proclaimed an Emirate in 1996 with a harsh interpretation of Islamic law.

*Public executions, Amputations, Men required to grow beards, Women had to wear the all-covering burka, Banned television, music and cinema, Disapproved of girls aged 10 and over going to school and Cultural abuses including the destruction of **Bamiyan Buddha***

- Pakistan, Saudi Arabia and UAE were the only three to recognise the Taliban government when it was in power [1996 – 2001].

Why did the U.S. come in?

- Sep 11, 2001 attacks in the U.S. by Al-Qaeda, killed nearly 3,000 people.
- Al-Qaeda's leader Bin Laden was in Afghanistan, under the protection of the Taliban who refused to hand him over.
- The US intervened militarily; US-backed forces in the north swept into Kabul and conducted heavy airstrikes.
- The US -
 - i. Removed the Taliban from power (who moved into remote areas)
 - ii. Vowed to support democracy and eliminate the terrorist threat
- NATO allies had joined the US and a new Afghan government took over in 2004.

How costly was the war (2001-2021)?

- Estimated 69,000 losses in the Afghan security forces
- Number of civilians and militants killed - about 51,000 each
- More than 20,000 US soldiers injured
- Afghanistan now has the third-largest displaced population in the world.

Why is the U.S. withdrawing now?

- Killed Osama bin Laden (2011 itself)
- Ousted Al-Qaida from Afghanistan.
- In 2014, NATO's international forces ended their combat mission, leaving responsibility for security to the Afghan army.

What was the Taliban doing meanwhile?

- Since 2011, despite a continued international presence and billions of dollars of support, the Taliban regrouped and gradually regained strength in more remote areas.
- They were engaged in insurgency against the Afghan government and its Western allies.
- After 2014, Taliban seized more territory.
- Peace talks between the US and the Taliban started in 2018.

How did the peace talks fare?

- In February 2020 the two sides struck a peace deal in Doha.
- It committed the US to withdrawal and the Taliban to preventing attacks on US forces.
- Other promises included not allowing al-Qaeda or other militants to operate in areas it controlled and proceeding with national peace talks.
- However, the Taliban continued to target Afghan security forces and civilians.
- The [agreement](#) on a US withdrawal came in February 2020 in Qatar.

What is the recent happening?

- In April 2021, Biden, declared that all US troops would leave the country by Sept. 11 2021.
- Taliban stepped up its campaign to defeat the the government in May as foreign forces started to withdraw.
- With a few troops left, the capital Kabul finally fell to the Taliban.
- President Ghani flew out of the country stating to avoid any more bloodshed.
- Many Afghan leaders formally handed over power to the Taliban.

- The Taliban have now -
 1. Declared the war is over as Afghan forces surrendered and President fled the country.
 2. Installed themselves in the presidential palace with little resistance.

Why did the Afghan army fell so soon?



- Not effective without residual US air and ground support.
- Corruption and lack of local legitimacy.
- Lack of sound political and administrative backing.
- Soldiers don't receive regular pay, and not properly supplied and equipped with.

A study in 2017 showed the Taliban were in full control of a number of districts

US intelligence assessment itself reported that the Afghan government could fall within 6 months of US departure.

Who will preside now?

- Decision will be taken after a consultation among top Taliban leadership.
- Likely President candidate - Mullah Abdul Ghani Baradar
 - i. Taliban's deputy commander and its most public face
 - ii. Chief negotiator
 - iii. Oversaw the signing of the agreement for the US troop withdrawal

What are the key concerns now?

- Fears of a worsening civil war in Afghanistan as the likely outcome.
- Return to the cruel and repressive practices as in Taliban's previous regime [1996 – 2001].

What is the Taliban's response to these fears?

- Denies claims that it would return to strict rule under the Islamic law
- Wants a –genuine Islamic systeml for Afghanistan and build –an open, inclusive Islamic governmentl.
- Pledges for national peace talks
- Promises to make provisions for women's and minority rights, in line with cultural traditions and religious rules
- However, there are already signs of the group prohibiting women from working in some areas, attending schools and universities, and leaving the house without a male escort.

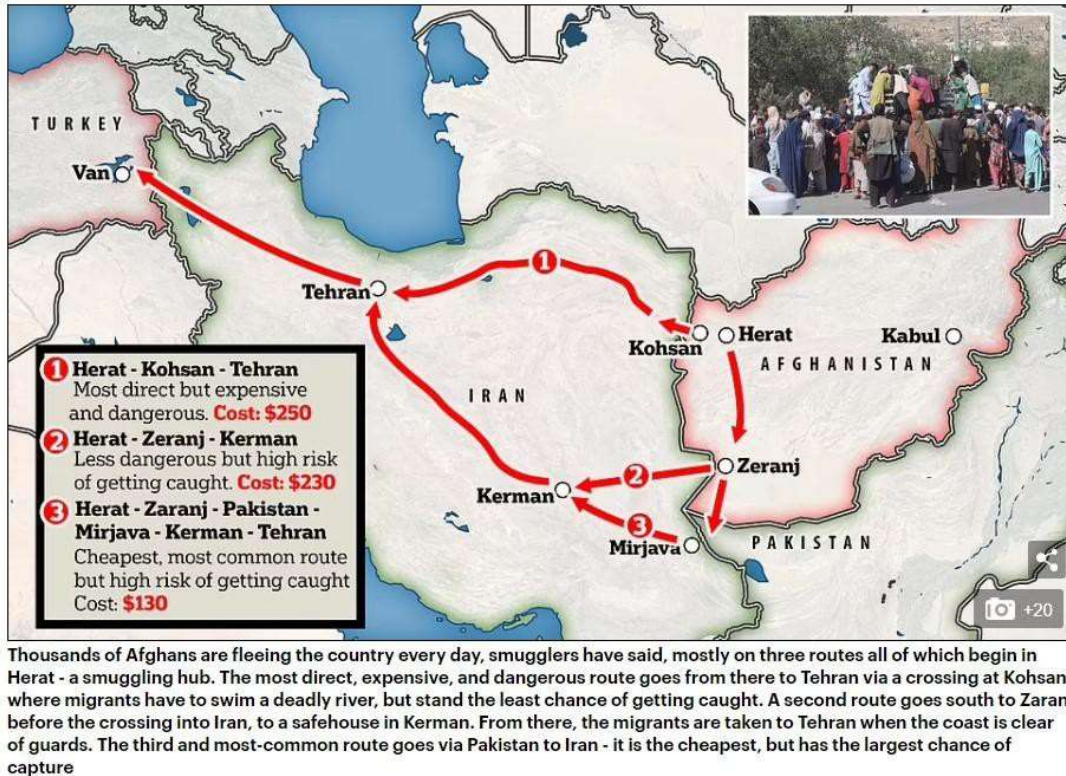
7.2 Greece's Wall - Afghan Refugee Crisis

Why in news?

- Greece has built a 40-km long wall and installed a hi-tech surveillance system on its border with Turkey.
- To avoid heavy migration of Afghan citizens into Greece via Turkey, and then further into Europe, following the [Taliban takeover of Afghanistan](#).

What is the Afghan refugee crisis?

- The Taliban takeover of Afghanistan has given way to a new refugee crisis.
- 400,000 Afghans have fled their homes since the start of 2021, including almost 300,000 since May 2021.
- Afghan nationals enter Turkey from Iran and then, via land or sea enter Greece to eventually get into Europe.



What is Greece's and Turkey's stance?

- The European Union and Greece have been in talks to help each other in the possibility of massive migration from Afghanistan.
- EU nations should collectively act towards supporting the countries in the region -which will be affected by the migration wavel.
- EU should help the Afghan citizens in Afghanistan and in neighbouring countries like Iran.
- But the cooperation on migration should be promoted based on mutual understanding and interests.
- Because, the EU is not ready and does not have the capacity to handle and afford another major migration crisis like the one in 2015.

What is the 2015 migrant crisis faced by Greece?

- The European Union faced a huge inflow of migrants from neighbouring countries, especially the middle-east, during the **2015 Syrian war**.
- More than 1.3 million people fled to Europe, seeking asylum in the EU, Norway and Switzerland.
- Over 75% of those arriving in Europe had fled conflict and persecution in Syria, Afghanistan or Iraq.
- Most of these people arrived in Greece and Italy.
- 800,000 refugees had entered Greece from Turkey via sea, which was 80% of migrants arriving in Europe by the sea in 2015.
- Of this, only 150,000 had entered Italy; the rest



remained in Greece.

- In addition to the sea crossings, 34,000 crossed from Turkey into Bulgaria and Greece by land.

-In 2016, Greece and Turkey reached an arrangement to halt the inflow of migrants into Greece via Turkey in return for financial support for Turkey.¹

- Thereafter, any migrants who had not applied for asylum or whose applications were rejected were sent back to Turkey.
- In 2020, Turkey had opened its borders for migrants to move towards Greece, stating that it had –reached its capacity¹.
- The wall at the Greece-Turkey border now comes after a discussion on the Afghanistan crisis between Greek PM Kyriakos Mitsotakis and Turkish President Recep Tayyip Erdoğan.

7.3 Recognising Taliban Regime

What is the issue?

With the [Taliban's takeover of Afghanistan](#), it is imperative to look into the issue of recognising an entity that claims to be the new government of a State.

Is State and Government the same?

The state is a political and geopolitical entity.

The nation is a cultural or ethnic entity.

Government is the means through which the State power is employed.

Malcolm Shaw - A change in government, however accomplished, does not affect the identity of the State itself.

- In other words, State is an organized political community acting under a government (particular group of people that controls the state apparatus).
- Clearly, recognition of a ‘Government’ is different from recognition of a ‘State’ under international law.
- In the current case, the issue is about the recognition of not Afghanistan (the State) but the present Taliban regime (the government).

Why is recognition essential?

- Recognition of a government is vital in international law **to know who the governing authority of the State is.**
- Because, it is the governing authority that carries out domestic and international legal obligations relating to diplomatic relations, rights protection, etc.

What is the complexity in Afghanistan?

- State and government generally work in tandem.
- The recognition is easier if the change of government within a state occurs with political transfer of power through legal means.
- But the Taliban have ousted the sitting government using unconstitutional means / extra-legal methods.
- So, the recognition will now depend on the countries’ political considerations and geo-strategic interests.

What are the different principles of recognition?

Test of ‘effectiveness’

- To recognise a government means to determine **whether it effectively controls the state it claims to govern.**
 - i. Control over the territory (or a part of it), national institutions, the banking and monetary system, etc.
 - ii. Control over a majority of the population
 - iii. A reasonable possibility of permanence

- It is immaterial how the new government occupied office (whether through civil war, revolution, or a military coup).
- As per this, Taliban would be recognised as the government as it effectively controls Afghanistan.

Democratic legitimacy

- Recognition of a government depends on whether it is the **legitimate representative of the people it claims to govern**.
- So, governments that capture power through non-democratic means should not be recognised by states.
- The Taliban regime, despite exercising effective control over Afghanistan, lacks democratic legitimacy and thus would fail to be recognised as the legitimate representative of Afghanistan.

What is the international law on this?

- Under international law, there are two modes of State recognition that confer legitimacy upon the said State.
- De Facto recognition may be based on the effective control theory alone but it can be revoked at any time.
- But de jure recognition is non-conditional, final and irrevocable and a State will have absolute rights and

De jure government - The legal, legitimate government of a state and is so recognized by other states.

De facto government – That which is in actual possession of authority and control of the state. ***Under Article 1 of the Montevideo Convention on the Rights and Duties of States, in order to acquire recognition, a state must have i) a permanent population, ii) a defined territory under its control, which is governed by a particular government, iii) the capacity to enter into relations with other states.***

obligations against other states.

- De jure recognition is largely based on the democratic legitimacy doctrine and on compliance with Article 1 of the Montevideo Convention.

What are the options before the countries?

- The doctrine of democratic legitimacy is widely employed by countries who would refuse de jure recognition of the Taliban.
- Also, if the Afghan President, Ashraf Ghani, who fled the country when the Taliban entered Kabul, were to announce a government in exile, it could be recognised as the de jure government.
- E.g., Many countries recognised Yemen's Abdrabbuh Mansur Hadi government in exile since 2015 (de jure, not de facto) as rebellious separatists acquired power in Yemen through illegal means.
- Nicolás Maduro government in Venezuela is not recognised by several countries due to the alleged lack of democratic legitimacy.
- But it would still be consistent with international law if Russia and China formally recognise the Taliban regime due to its effective control of Afghanistan.
- Because there is no binding legal obligation on countries to recognise regimes based on democratic legitimacy.

What about India's decision?

- Given the Taliban's brutal past, its extremist ideology, and absence of democratic legitimacy, India may refuse legal recognition.
- However, India will still have to find a way to engage with the de facto Taliban government given India's huge investments in Afghanistan, and for multilateral dealings such as the SAARC.

G.S PAPER III

8. ECONOMY

8.1 Doing Away with Retrospective Tax

Why in news?

- The Union Finance Minister recently introduced the Taxation Laws (Amendment) Bill in the Lok Sabha.
- A key provision was doing away with the contentious retrospective tax law of 2012.

What is a retrospective tax?

- A retrospective tax taxes a transaction that took place prior to the law being framed.
- It can be a new or additional charge on transactions done in the past.
- Countries use this form of taxation to rectify any deviations in the taxation policies.
- Retrospective tax affects companies that had unknowingly or knowingly used the tax rules differently.

What is India's retrospective tax law of 2012?

- The retrospective tax provision was introduced in 2012 as an amendment to the Income Tax Act, 1961.
- It allowed the government to tax companies on mergers and acquisitions (M&As) that happened before 2012.
- In effect, it aimed to bring past indirect transfer of Indian assets under the ambit of taxation.
- The law was thus used to raise large tax demands on foreign investors like Vodafone and Cairn Energy.
- It was hence blamed for impairing India's investment climate.

What are the two major cases in this regard?

- UK-based telecom giant Vodafone bought a 67% stake in Hong Kong-based Hutchison Whampoa for \$11 billion.
- To this transaction, the Indian government raised a demand of Rs 7,990 crore in capital gain.
- It said the company should have deducted the tax at source before making a payment to Hutchison.
- The company took the matter to the Supreme Court.
- The Court ruled in favour of Vodafone saying that it could not be taxed retrospectively.
- To overcome the legal hurdle, the retrospective taxation law was introduced.
- With this, the I-T department slapped Rs 3,100 crore tax notice on Vodafone India.
- Another such move was also made against the 2006 internal corporate restructuring carried out by UK-based Cairn Energy.
- Both Cairn and Vodafone filed lawsuits in international courts against India's retrospective tax.
- Separate international arbitration tribunal verdicts in the Vodafone and Cairn cases have ruled against India's retrospective tax demands.
- The tax amendment now has been prompted by Cairn Energy's relentless pursuit to enforce the arbitration award.

What are the current changes?

- The Taxation Laws (Amendment) Bill nullifies the relevant retrospective tax clauses introduced in 2012.
- As per the proposed changes, any tax demand made on transactions that took place before May 2012 shall be dropped.
- And any taxes already collected shall be repaid, albeit without interest.
- To be eligible, the concerned taxpayers would have to drop all pending cases against the government.

- They should also promise not to make any demands for damages or costs.
- Going ahead, India needs to demonstrate greater clarity and consistency in policy across the board (trade tariffs, GST, etc.,) to fix its broken credibility.

8.2 Bi-Monthly Monetary Policy - August 2021

Why in news?

In its latest meeting, the Monetary Policy Committee (MPC) of the RBI has revised the interest rates and updated growth and inflation forecasts.

What are the highlights?

- The key policy rate (Repo rate- the RBI's lending rate to banks) is kept unchanged at 4% for the seventh time in a row.
- Reverse repo rate [RBI's borrowing rate from banks] is kept at 3.35%.
- The MPC has raised the inflation target for fiscal 2021-22 to 5.7% from 5.1% projected earlier.
- But it has maintained the growth forecast at 9.5%.

What is the rationale?

- The nascent and hesitant economic recovery post-pandemic needs to be nurtured through fiscal, monetary and sectoral policy levers.
- Elevated inflation level and delayed recovery in the economy would have prompted the panel to keep rates steady.
- This accommodative stance will thus continue as long as necessary to revive and sustain growth and to mitigate the impact of Covid-19.
- The MPC however sees to it that inflation remains within the target.

What about the inflation scenario?

- The new inflation target of 5.7% for fiscal 2021-22 is below the RBI's upper band of inflation target of 6%.
- But adverse effects on cost conditions for manufacturing and services exist, driven by -
 - i. elevated prices of industrial raw materials
 - ii. high pump prices of petrol and diesel
 - iii. logistics costs
- However, the weak demand conditions are affecting the pass-through of the cost burden to output prices and core inflation.
- Crude oil prices are volatile with implications for imported cost pressures on inflation.
- A calibrated reduction of the indirect tax component of fuel prices by the Centre and states can help to substantially lessen cost pressures.
- Given all these factors, inflation may remain close to the upper tolerance band up to Q2 of 2021-22.
- Nevertheless, these pressures should reduce in Q3 of 2021-22 on account of kharif harvest arrivals and as supply side measures take effect.

How is the growth forecast?

- The MPC has retained the real GDP growth at 9.5% in 2021-22.
- The investment demand is still weak.
- But, improving capacity utilisation, rising steel consumption, higher imports of capital goods are expected to revive growth.
- The supportive monetary and financial conditions, and the economic packages offered by the government will help keep the momentum.
- Innovation and working models adopted during the pandemic by businesses will continue to reap productivity gains even after the pandemic recedes.

- This should help trigger a virtuous cycle of investment, employment and growth.
- The recovery remains uneven across sectors and needs to be supported by all policy makers.

What is RBI's VRRR auction plan?

- The RBI has decided to conduct fortnightly variable reverse repo rate (VRRR) auctions.
- It plans to conduct four VRRR auctions in the fortnight beginning August 13 till September 24, 2021.
- This is to absorb surplus liquidity from the banking system.
- These enhanced VRRR auctions should not be misread as a reversal of the accommodative policy stance.
- Because, the system-level liquidity will still be more than ₹4 lakh crore at the end of September 2021.
- So, the amount absorbed under the VRRR window forms part of system liquidity.
- After this, the RBI will continue with its overnight fixed-rate reverse repo auction.
- The RBI will also conduct two more [Government Security Acquisition Programme](#) (G-SAP) operations of ₹25,000 crore each on August 12 and 26, 2021.
- The overall priority now is to nurture the existing growth impulses to ensure a durable recovery along a sustainable growth path.

8.3 SC Ruling on Antitrust Investigations

Why in news?

The Supreme Court has ruled that India's competition regulator (Competition Commission of India) would proceed with antitrust investigations into Amazon and Walmart-owned Flipkart.

What is the CCI investigation for?

- Amazon and Flipkart allegedly had exclusive agreements with smartphone brands for the sale of certain devices on their platforms.
- These platforms had given preferential treatment to certain sellers by giving them higher search rankings and offerings.
- The platforms would incur part of the discount that such sellers would offer during key sales periods.
- The CCI had in 2020 ordered an investigation based on such allegations by trade body Delhi Vyapar Mahasangh.

What is the stance of Flipkart and Amazon?

- Amazon and Flipkart had approached the Karnataka HC to quash the order by the CCI, on the following grounds:
- It was the choice of the manufacturer if they wanted to sell a smartphone exclusively on one platform.
- There were no agreements between them and sellers on record that were shown to likely have a negative impact on competition.
- The CCI did not have enough evidence to pursue the matter.
- It had not formed a prima facie opinion on the potential impact on the competition while passing the orders.

What have the Courts ruled?

- The High Court and Supreme Court have rejected the petitions by Amazon and Flipkart that a probe into the companies be quashed.
- The high court concluded that orders by the CCI initiating an investigation were administrative directions.
- So, the CCI was not bound to enter an adjudicatory process or form an opinion before ordering an investigation.

What is the significance?

- Amazon and Flipkart are leading players in e-retail market in India.

- The increasing dependence of sellers on online platforms meant that certain platforms were becoming essential facilities and had to treat sellers in an unbiased manner.
- But –opacity in platform rankings had become a cause for competition concern in the recent period.

Quick Fact

Competition Commission of India

- The CCI is a statutory body of the Government of India.
- It is responsible for enforcing the Competition Act, 2002 that prohibits anti-competitive agreements.
- The Commission- i) eliminates practices having adverse effect on competition, ii) promotes and sustains competition, iii) protect the interests of consumers, and iv) ensure freedom of trade in the markets of India

8.4 Economy Since 1991

What is the issue?

With three decades from the 1991 economic reforms, here is a reflection into the performance of the economy over the years and the course corrections needed.

What is the 1991 reforms all about?

- **Objectives**
 1. Address the balance of payments (BoP) crisis
 2. Reform, restructure and modernise the economy, with fundamental changes in the approach and conduct of economic policy.
 3. Improve the productivity and efficiency of the system by creating a more competitive environment.
- So the reforms brought three important changes:
 1. Dismantling the vast network of licences, controls and permits that dominated the economic system (Liberalisation)
 2. Redesigning the role of the state and allowing the private sector a larger space to operate within (Privatisation)
 3. Abandoning the inward-looking foreign trade policy and getting integrated with the world economy and trade (Globalisation)
- The last was particularly important as normally the opposite of it is done when faced with a BoP crisis. But instead, the barriers to entry and growth were removed.

How has the economy performed post-1991 liberalisation?

- **Growth Rate** - GDP at factor cost grew annually by
 1. 6.20% between 1992-93 and 2000-01
 2. 7.69% between 2001-02 and 2010-11
 3. 6.51% between 2011-12 and 2019-20
- The best performance was between 2005-06 and 2010-11 when the GDP grew by 8.7%.
- This is the highest growth experienced by India over a sustained period of 5 to 6 years (despite the 2008-09 global economic crisis).
- Notably, the recent decline in growth rate started even before the advent of COVID-19.
- **Current Account Deficit (CAD)**
 - Simply, CAD is the shortfall between the money flowing in on exports, and the money flowing out on imports.
 - A rising CAD shows that the country is becoming **uncompetitive** and the investment climate is getting weak.
 - The key changes made in this regard in 1991 were:
 1. opening up of the external sector, which included liberal trade

$$\text{Current Deficit/Surplus} = \text{Trade gap} + \text{Net current transfers} + \text{Net income from abroad}$$

policy

2. market determined exchange rate
 3. liberal flow of external resources
- Post-reforms period witnessed
 1. a small Current Account Deficit in most of the years
 2. a small surplus in three years
 3. exceptions in 2011-12 and 2012-13 as CAD exceeded 4%, but was taken care of quickly
 - Foreign exchange reserves showed a substantial increase and has touched \$621 billion (August 2021).
 - But India still has a high merchandise trade deficit, which is offset to a large extent by the surplus in services.
 - **Poverty ratio** - The post-reform period up to 2011-12 saw a significant reduction in poverty ratio.
 - The factors were faster growth supplemented by appropriate poverty reduction programmes [Rural Employment Guarantee Scheme, Extended Food Security Scheme].
 - 1. As estimated by the erstwhile Planning Commission using the Tendulkar expert group methodology, the overall poverty ratio –
 1. came down from 45.3% in 1993-94 to 37.2% in 2004-05
 2. further down to 21.9% in 2011-12
 - But with a decline in growth rate since 2011-12 and a negative growth in 2020-21, the poverty rate may have increased.

What is the priority now?

- The progressive decline of growth rate since 2011 is largely driven by the decline in investment rate (5 percentage points since 2010-11).
- While growth is driven by investment and reforms do provide a natural climate for investment, the real growth **requires more than reforms**.
- It should take into account the influence of the non-economic factors such as social cohesion and equity.

What should the approach from now on be?

- Focussing on reform agenda which is incremental in character, supplemented by a careful nurturing of the investment climate.
- Identifying the sectors which need reforms for a competitive environment and improved performance efficiency.
- A relook at the financial system, power sector and governance, with Centre and States being joint partners in this.
- Increased focus on social sectors such as health and education in terms of government performance.
- Emphasis on quality beyond the quantitative expansion in service delivery.
- Overall, same economic approach and direction as in the past three decades, with added equity considerations.
- Growth and equity are interdependent i.e., only in an environment of high growth, can equity be pushed aggressively.

8.5 End of LIBOR

Why in news?

The London Inter-Bank Offered Rate (LIBOR) nears its end by the end of December 2021.

What is LIBOR?

- It is a benchmark **interest rate** at which major global banks lend to one another in the international interbank market for short-term loans.
- It serves for short-term loans with maturities from Overnight to 1 year.

- It also acts as a basis for Corporate and Government Bonds, mortgages, student loans, credit cards, derivatives and other Financial Products.

How does LIBOR work?

Administered by ICE Benchmark Administration (IBA)

Regulated by the UK's Financial Conduct Authority (FCA)

- Each day, Intercontinental Exchange asks major global banks how much they would charge other banks for short-term loans.
- It then calculates the average from these numbers.
- So LIBOR is the average interest rate at which major global banks borrow from one another.
- It is based on five currencies including the U.S. dollar, the euro, the British pound, the Japanese yen, and the Swiss franc, and serves 7 different maturity periods
- The combination of 5 currencies and 7 maturities leads to a total of 35 different LIBOR rates calculated and reported each business day.

What is the recent decision?

- Following scandals in LIBOR (2012) and questions subsequent questions around its validity as a benchmark rate, it is being phased out.
- The FCA confirmed in March, 2021 that 26 LIBOR settings will end on December 31, 2021.
- However, overnight, 1, 3, 6, and 12 Months US Dollar LIBOR settings will end only by June 30, 2023.

Why is this move significant?

- LIBOR is an indicator of the health of the financial system, and provides an idea of the trajectory of impending policy rates of central banks.
- A total of \$ 400 trillion of financial products are presently exposed to LIBOR.
- Of this, at least \$52 trillion of financial products will still be exposed to LIBOR after December 31, 2021.
- India has about \$532 billion of external loans which are exposed to LIBOR.
- So, a transition away from the LIBOR poses certain challenges for banks and the financial system.

Why is LIBOR brought to an end?

Susceptibility to manipulations

- LIBOR's credibility was damaged by rate-fixing scandals in 2012.
- The panel banks submissions were alleged to be inaccurate or manipulated to project market strength.
- All these led to breach of market trust.
- After the 2012 Wheatley Review, a number of reforms were introduced to reduce subjective input and make LIBOR a transaction-based benchmark.
- Thus, IBA became LIBOR's administrator and FCA the supervisory authority for IBA.

Illiquidity

Illiquidity refers to a condition where assets cannot be exchanged for cash easily.

- Despite the reforms introduced, the number of transactions in the short-term wholesale Funding Market reduced over time.
- Because, financial institutions became more reluctant to lend on unsecured basis for terms longer than overnight.
- Thus, LIBOR became more vulnerable to short-term market illiquidity and amplification of price moves that could cause systemic risks.
- Notably, financial transactions are better suited to reference rates that are close to risk free.

What are the alternative reference rates?

- Secured overnight financing rate (SOFR) is being widely used as a substitute for LIBOR across the world.

- SOFR is based on transactions in the US Treasury repo market.
- While LIBOR is an unsecured reference rate (submitted by banks), SOFR is an overnight secured reference rate.
- It is secured because it is transaction-based, collateralized and representative of wholesale borrowing.
- It is administered by the New York Fed that broadly measures the borrowing cash overnight with US treasuries as collateral.

Other Benchmarks rates - (1) CHF - SARON; (2) EUR - ESTER; (3) GBP - SONIA (Already in use since March 31, 2021); (4) JPY - TONA

- All these benchmarks are having an overnight tenor as opposed to LIBOR which had a tenor from overnight to 1 year.

What are the limitations to SOFR?

- Since it is based upon the repurchase (repo) markets, it is at the repo markets mercy.
- In September 2019 a spike in repo rates resulted in SOFR soaring from 2.14% to 5.25% in a single day.

What are the other challenges?

- There are multiple complexities involved in the shifting from LIBOR to another regime
- There could be a lot of volatility in the financial markets as the deadline arrives.
- The RBI has issued two circulars giving the road map to the transition and arrangements to be made for the same.

8.6 PLFS Data

What is the issue?

- NSO Periodic Labour Force Survey (PLFS) data for 2019-2020 was released recently.
- While the increase in Workforce Participation Rate (WPR) is taken for good, the underlying reasons suggest at a deeper crisis in the economy.

What are the PLFS and WPR?

- PLFS is India's first computer-based survey launched by the NSSO in 2017.
- The two major objectives:
 1. To estimate the key employment and unemployment indicators for the urban areas only in the 'Current Weekly Status' (CWS) quarterly.
 2. To estimate the employment and unemployment indicators in both 'Usual Status' (ps+ss) and CWS in both rural and urban areas annually.

Usual Status - determined on the basis of the reference period of the last 365 days preceding the date of survey.

Current Weekly Status (CWS) - determined on the basis of a reference period of the last 7 days preceding the date of survey.

WPR - percentage of total workers to the total population

What is the WPR data in the recent survey?

Overall

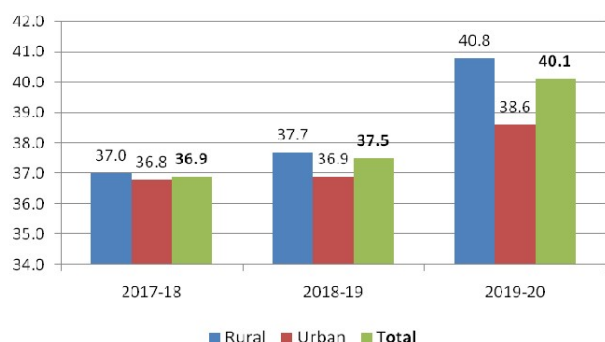
- Usual status (ps+ss) – Increase from 35.3% to 38.2% from 2018-19 to 2019-20, an 8.2% growth.
- Rural areas - Increase from 35.8% to 39.2%, a 9.5% growth
- Urban areas - Increase from 34.1% to 35.9%, a mere 5.3% growth

Gender-wise

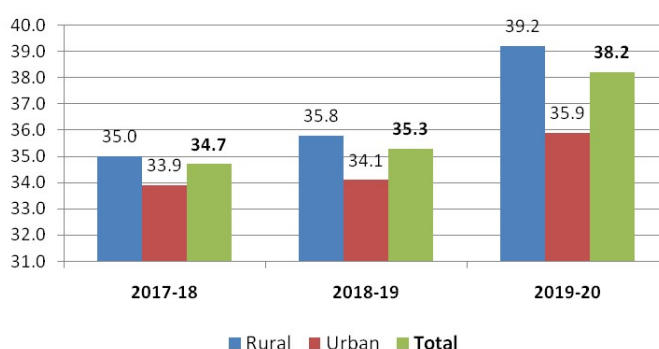
- Rural females – An increase of **26%**(19 to 24% share).

- Rural males - An increase of **3.3%**(52.1 - 53.8% share).
- Urban females - Increase from 14.8 to 16.8% (a **15.8%** growth)
- Urban males - Increase from 52.7 to 54.1% (**2.7%** growth).

Labour Force Participation Rates (%)



Worker Population Ratio (%)

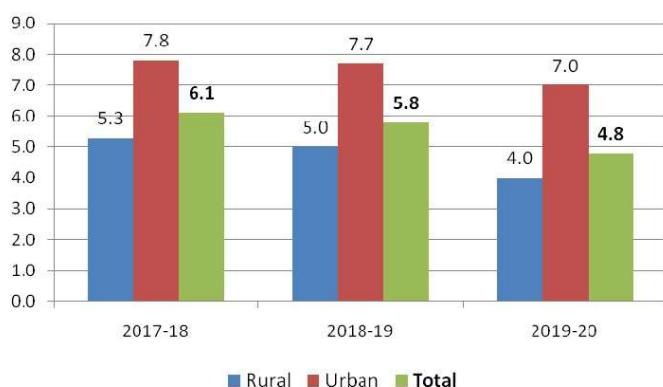


Rural India emerging as the primary location for job creation

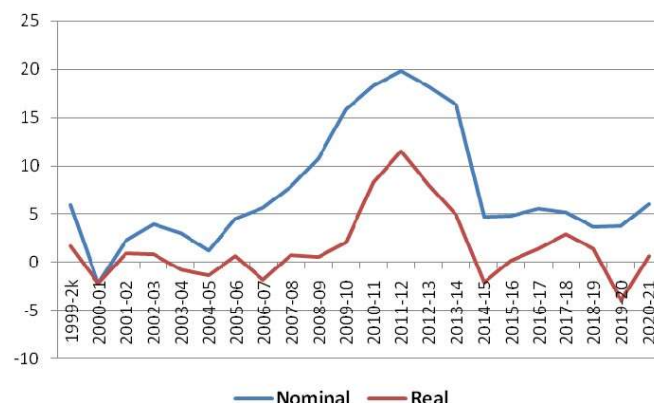
Broader trends

- The female WPR has risen significantly across social groups:
 - Rural female from the Scheduled Tribe - 33.2%; the highest** recorded
 - Others - 29.4%; SC - 25.4%; OBC- 24.3%
- Urban areas registered a much lower rise in the WPR compared to rural areas.
- The share of self-employed workers has increased from 52.1% in 2018-19 to 53.5% in 2019-20.
- The rural females witnessed an increase in the self-employed category from 59.6% to 63%.

Unemployment Rates (%)



Rural wages growth (% year-on-year)



Is the increase in WPR a good sign?

- **Generally, yes.** Because, a higher WPR is generally an indication of improved well-being of the population.
- **But** in a poor region with higher WPR, there may not be necessarily an improved economic status and well-being.
- And now, the 3-month nationwide lockdown in March 2020 coincided with the 4th quarter of PLFS 2019-20.
- It was the time when economic activities stalled intermittently, GDP growth dipped, unemployment and income losses were high.

So, what are the true reasons behind?

- Post pandemic decline in good-quality employment led many to opt for low paid work in rural India.
- The general pattern is a shift of workers away from low-productivity sectors such as agriculture.

- India too witnessed a decline in agriculture's share of overall employment since the 1970s that continued until 2017-18.
- But 2019-20 saw a sharp 32 million rise in employment in agriculture; (1st time in 5 decades)

Many were forced to seek **distress employment** resulting in a 43-million rise in total employment numbers in 2019-20 from the year earlier. Agriculture absorbed almost 3/4th of this increase in workers.

- This **reverses the structural transformation of the economy** underway since 2004-05.

What are the other reasons and the concerns?

- **Decline** - Majority of workers turned to self-employment as regular employment declined.
- **Unpaid Labour** - Increase in the self-employed rural females is principally due to an increase in the share of helpers in the household enterprises.
- Counting them as 'employed' is deceptive, as it is often unpaid labour.
- **Loan Account** - Overall increase in loan account under the female share of MUDRA Scheme in all 3 categories (Shishu, Kishore and Tarun) in 2019-20.
- A mere increase in the loan account especially in the Shishu category does not necessarily lead to employment creation and sustainable income generation. Counting all as 'employed' is again flawed.
- **Wages** remained almost constant in 2019-20 over 2018-19 for all - Regular/salaried, Self-employed, Casual workers.

What should be done?

- Taking the increase in the WPR for good might be a misinterpretation.
- The PLFS estimates are instead an early warning of a structural crisis.
- The first three quarters also suggest that a structural retrogression in the economy was underway before the pandemic.
- Only creation of productive and remunerative jobs would course correct this structural change.
- Also, a better indicator for the extent of joblessness in the economy would be the number of hours worked.

*Joblessness is bad
enough but
underemployment
has been worsening
as the jobless return
to farms*

8.7 National Monetisation Pipeline

Why in news?

The Union government has announced its plans to –monetize about Rs 6 trillion worth of assets held by it, and public sector units (PSUs), under the [National Monetisation Pipeline](#) (NMP).

What is monetisation?

- When a government transfers its revenue rights to private parties in return for upfront money, a revenue share, and commitment of investments in the assets, it is called a monetisation transaction.
- It is done for a specified transaction period to raise funds.
- Private players will have to -
 1. calculate what they can earn from it in various ways in those years
 2. discount that cash flow to its 'present value' (PV)
 3. deduct from PV their profit margin
 4. pay the balance amount as upfront rental to the government i.e., pay for operation and management rights
- Unlike the disinvestment, there will **not be a change of ownership** i.e., the assets or the land therein will not be sold.
- E.g Real estate investment trusts (REITs) and infrastructure investment trusts ([InvITs](#)) are the key structures used to monetise assets in the roads and power sectors.

What are the other models?

- Other monetisation models on Public Private Partnership (PPP) basis include
 - Operate Maintain Transfer (OMT),
 - Toll Operate Transfer (TOT), and
 - Operations, Maintenance & Development (OMD).
- OMT and TOT have been used in highways sector while OMD is being deployed in case of airports.
- In sectors like mining, Centre may also look for auction and Mine Development Operator routes.
- The choice of instrument will be determined based on
 - nature of asset,
 - timing of transactions (including market considerations),
 - target investor profile & and
 - the level of operational/investment control envisaged to be retained by the asset owner etc.

What is the National Monetisation Pipeline?

- It aims to unlock value in brownfield projects by engaging the private sector.
- It aims to transfer revenue rights to the private players (not ownership in the projects).
- The private players operating the assets are also expected to modernize them.
- The funds generated (around Rs. 5.96-lakh crore) will be used for infrastructure creation across the country.
- This, in turn, could help fund the [National Infrastructure Pipeline](#) with new projects worth Rs. 100-lakhcrore.
- Developed by NITI Aayog, in consultation with infrastructure line ministries.

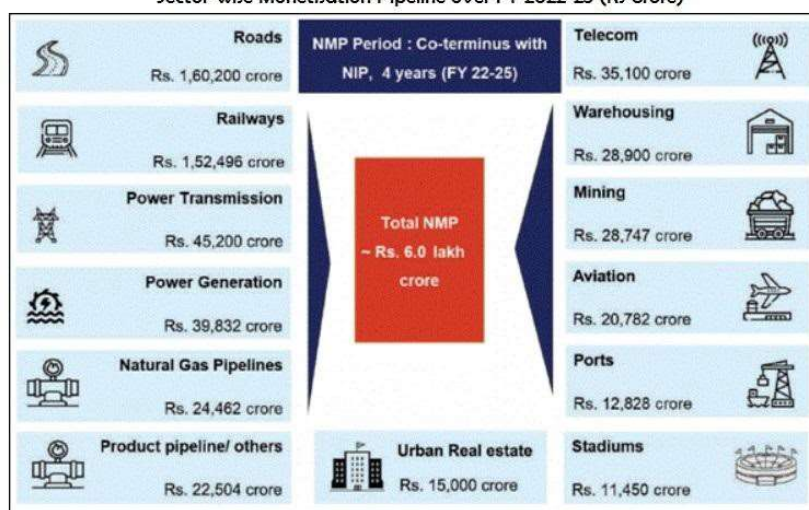
Greenfield investment - A company will build its own, brand-new facilities from the scratch

Brownfield investment - A company purchases or leases an existing facility.

What are the key assets identified?

- Road sector (maximum) - Rs 1.6 lakh crore worth national highways
- Railways sector - About 400 stations, 150 trains, and some tracks and woodshed
- Power sector - Rs 67,000 crore worth transmission lines from Power Grid and Rs 32,000 crore worth Hydro, Solar, and Wind projects from NHPC, NTPC, and Neyveli Lignite

Sector-wise Monetisation Pipeline over FY 2022-25 (Rs Crore)



Is monetization beneficial?

Under-utilised assets

- E.g., A port or an empty piece of land that is not being used adequately.

- Here, the private player makes the necessary investment to make the asset more revenue-generating, and reaps the benefits from it.
- So, this is a win-win situation as -
 1. the government gets a 'fair' value for its assets
 2. the economy benefits from an increase in efficiency (increased cash flows from the asset)
 3. the private player gets its return on investment

Well-utilised assets

- While NMP's focus is on under-utilised assets, the list of projects includes well-utilised assets also .E.g., monetising a highway that has good traffic.
- In this case, the private player has little incentive to invest and improve the assets' efficiency as –
 1. anyways, it can operate the assets as they are
 2. the cost of capital is higher (than that for a public authority), which could offset the benefit of any reduction in operating costs made
- In any case, the Government earns lesser revenues than what it might earn if it operated the assets itself.
- Clearly, the **benefits** are likely to be **greater when under-utilised assets are monetised**.
- But private players will prefer well-utilised assets because cash flows and returns are more certain. But this does not go well with the larger public interest.

Which is the effective mode (PPP or InvIT) of monetization?

Challenges in PPP [Public Private Partnership] route

- Getting the valuation of the assets right over a long-term horizon, say, 30 years is hard as this involves -
 1. Rightly assessing the growth rate of the economy over such a period.
 2. In case of roads - Other factors such as the level of economic activity in the area, prices of fuel and vehicles, alternative modes of transport and their relative prices, etc.
- In some cases, the consumer and the economy end up bearing the high cost.
- Also, the life of the asset may not be long when the government receives it back after the agreement period. In that case, asset monetisation virtually amounts to sale.

InvIT - the Infrastructure Investment Trusts

- These are mutual fund-like vehicles. While in mutual funds, investors invest in equity stocks, in InvIT, the investment is in infrastructure projects.
- In the InvIT route, the public authority continues to own the rights to a significant portion of the cash flows and to operate the assets.
- So, the issues that arise with the transfer of assets to a private party (under PPP) are less here.

What should be done on the implementation side?

- The Government can set up an **Asset Monetisation Monitoring Authority** to independently monitor the monetization process.
- Staffed by competent professionals, the Authority should look into -
 1. the valuation of the assets
 2. the impact on price charged to the consumer
 3. the choices on assets (under-utilised or well-utilised assets)
 4. the experience across different sectors, etc.

8.8 US' Taper Tantrum Policy

Why in news?

The manner in which the US Federal Reserve (Fed) is easing the financial market is suggestive of the taper tantrum trends of 2013.

What is the taper tantrum of 2013?

Quantitative easing involves

- 1. central bank purchasing longer-term securities from the open market in order to increase the money supply,*
- 2. encouraging lending and investment by interest rate cuts.*

- After the 2008 global financial crisis, to increase money supply in the economy, the US Fed introduced Quantitative easing programmes.
- All of them aimed at increasing lending by commercial banks and spending by consumers.
- US economy and labour market conditions recovered well after 2010.
- Eventually, the Fed began considering exit from the easy money policy by the end of 2013.
- So, the Fed followed Tapering i.e a system of slowly reducing the amount of money the Fed puts into the economy.

What was the impact?

- The US Fed's announcement in 2013 led to a sudden sell-off in global stocks and bonds.
- Because, when yields on the ultra-safe US treasuries rise, investors have reduced incentive to invest in riskier assets such as equity. [Click [here](#) to know more on bond yield-price relation.]
- US stock market dropped around 4% immediately after the announcement.
- Bond yields surged.
- The impact was felt globally as foreign investors pulled money out of bonds of emerging economies, creating.
- This triggered capital outflows and currency depreciation in many emerging market economies including India.
- The subsequent widening of current account deficit (CAD) eroded the forex reserves that the RBI had built till then.

What is the apprehension now?

- In the wake of the pandemic and its economic implications, U.S. Fed started massive bond-buying programmes in 2020 to infuse liquidity.
- It also pushed down the interest rates, to allow banks to offer cheaper loans, thereby stimulating economic activity.
- Now, with economic recovery, the US Fed is aiming for a gradual reduction of this quantitative easing programme.
- This has led to fears that the move could resemble the -taper tantrum of 2013.

What is the likely impact?

- **Global Investments** - Almost half of the global investor funds originate in the US.
- So, the Fed funds rate is critical for global investors due to the asset buying sentiment fuelled by the ultra-low interest rates in the US.
- Once rates begin moving up, investors who have borrowed in dollars to invest in assets globally will sell these assets to pay back the dollar loans.
- This can, in turn, de-stabilise markets.
- **India** - The biggest impact will be seen in FPI flows.
 1. FPI flows shrunk from 2015 to 2018 when the Fed was tightening its monetary policy.
 2. In contrast, the net inflow was more than Rs.1,70,000 crore in 2020, linked largely to Fed funds rate being close to zero.
 3. Now, again, FPI money is likely to move back to US treasury securities.

- Also, the Indian G-secs and the rupee could witness volatility once the Fed rate hike cycle begins.
- Nevertheless, the impact on Indian equities may be negligent, as seen during the first taper (2013).
- That's because domestic institutional investors such as mutual, insurance and pension funds can step up the buying.
- Also, with retail investors in place, large FPI outflows may not hurt the market much.
- The Fed officials have also said that they were trying to be as transparent as possible about their plans to avoid a repeat of the 2013 event.

9. AGRICULTURE

9.1 Becoming 'Atmanirbhar' in Edible Oils

What is the issue?

- The prices of imported edible oil are at an all-time high, causing inflation and high dependence on imports.
- In this context, here is a look at the government's programmes and the measures needed to increase palm oil production.

What are the domestic requirements?

- India needs about 25 million tonnes of edible oil a year to meet its domestic requirements.
 - India cultivated oilseeds on 25 million hectare of land, producing 32 million tons of oilseeds in 2018-19.
 - Soybean, rapeseed, mustard and groundnut accounts for almost 90% share in the area.
1. Primary sources - soybean, rapeseed and mustard, groundnut, sunflower, safflower and Niger (Niger nut)
 2. Secondary sources - palm, coconut, rice bran, cotton seeds and tree borne oilseeds

How import-dependent is India?

- Domestic production can only meet a little over 30% of the total demand for edible oils. The remaining requirement is met through imports.
- India is the world's largest importer of edible oil with a share of 20.7%, [EU (13.5%) & China (12.8%)]
- Edible oils imports account for 40% of the agricultural imports bill and 3% of the overall import bill of the country.
 1. Palm oil - 62 % of total oil imports (from Indonesia & Malaysia)
 2. Soya oil - 21% (from Argentina & Brazil)
 3. Sunflower oil - 21% (from Ukraine & Argentina)

Labour shortage in palm oil plantations of Indonesia and Malaysia, drought in Argentina affecting soyabean production, lower production of sunflower crops in Ukraine impacted price of edible oils. Subsequently, the government has to reduce import tariff of palm oil by 10 per cent in November to ease the domestic price.

What are the negatives of imports?

- Burden on the government's exchequer
- Dependence on the international market
- Price volatility

What is the government's recent palm oil mission?

- Diversifying more areas for palm oil plantations is the need of the hour.
- Palm cultivation has high potential - 1 hectare can give about 4,000 kg of oil (only 500 kg of oil in the case of sunflower, coconut, and rice bran).
- **National Edible Oil Mission-Oil Palm (NEMO-OP)** - The government recently launched this Rs.11,000-crore program to increase palm oil production by 3 times (11 lakh tonnes of Palm oil by 2025-26.)
- The government plans to boost cultivation of oil palm to 10 lakh hectares and 16.7 lakh hectares by 2025-26 and 2029-30 respectively across 19 Southern and the North-Eastern States.

- Forex savings from reduced imports can be spent on encouraging farmers to take up palm and oilseeds cultivation.
- **Others Initiatives**
 1. Oil Palm Area Expansion under Rastriya Krishi Vikas Yojana
 2. Increasing MSP of oilseed crops,
 3. Creation of buffer stock for oilseeds
 4. Cluster demonstration of oilseed crops

What is the issue with the current MSP?

- MSP system for oilseeds has failed due to low procurement by government agencies.
- As the procurement of pulses on MSP has been increased, the government should also ensure the oilseeds procurement.
- [Against a domestic demand of 30 million tonnes of pulses/year, India now imports just 4 million tonnes.
- India's success story of achieving self-sufficiency in pulses, must be replicated in the oilseeds & palm oil.]

What are the measures to be taken?

- Attracting corporate bodies towards palm oil production.
- Effectively using 100% FDI in palm oil plantation to attract corporate bodies.
- Leasing, renting or selling of wasteland, degraded land, and other lands to private entrepreneurs, cooperative bodies or joint ventures for oil palm plantation.
- Combining individual farming, contract farming and captive plantation.
- Incentivising farmers to cultivate oil palm and oilseeds.
- Compensating farmers for at least 6 years for their land under oil palm against the potential loss; providing a one-time irrigation subsidy to farmers.

10. ENVIRONMENT

10.1 Plastic Waste Management Rules

Why in news?

The Ministry of Environment, Forest and Climate Change (MoEFCC) has notified the Plastic Waste Management Amendment Rules, 2021, prohibiting identified single use plastic (SUP) items by 2022.

What are single use plastics?

- Plastics that are used just once, as in disposable packaging and products.
- **SUP's Impact:**
 1. Low utility but high littering potential.
 2. Large and growing volume adds enormously to the total plastic waste.
 3. Adverse impacts on both terrestrial and aquatic ecosystems.
- **Larger Concerns:**
 1. 22 States have, in the past, announced a ban on SUP, but waste choking wetlands and waterways (and being transported to the oceans to turn into microplastic) still continue.
 2. Lack of proper waste segregation leading to difficulties in recycling:- 34 lakh tonnes of plastic waste generated in 2019-20 in India; only about 60% is recycled.
 3. Nearly 43% of India's plastics are used in packaging and much of it is SUP.

What are the key provisions in the Amendment Rules?

“It’s suicidal and economically irrational to keep procrastinating”

- **Prohibition** of manufacture, import, stocking, distribution, sale and use of SUP, including polystyrene and expanded polystyrene, commodities from the 1st July, 2022. This covers –
 - i. ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration
 - ii. plates, cups, glasses, cutlery, wrapping or packing films around sweet boxes
 - iii. invitation cards, cigarette packets, plastic or PVC banners less than 100micron, stirrers
- **Thickness** of plastic carry bags to be increased from 50 microns –
 - i. to 75 microns from 30th September, 2021
 - ii. to 120 microns from the 31st December, 2022
- This is to stop littering due to light weight plastic carry bags, and allow their reuse.
- **Guidelines for Extended Producer Responsibility/EPR** (as per Plastic Waste Management Rules, 2016) has been given legal force through the 2021 Rules, for effective implementation.
- EPR - Environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle.
- Accordingly, collection and management of plastic packaging waste, which is not covered under the phase out of identified SUP items, through the EPR of the Producer, Importer and Brand owner (PIBO).
- **Other measures** for elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016:
 - 1. A Special Task Force by States/UTs
 - 2. National Level Taskforce by the Union MoEFCC for taking coordinated efforts
 - 3. Strengthening of waste management infrastructure in the States/UTs through the Swachh Bharat Mission.
 - 4. Comprehensive action plans by State/UT Governments and concerned Central Ministries/Departments
 - 5. Establishment of institutional mechanism in all States/UTs as per direction issued under Section 5 of Environment (Protection) Act, 1986
 - 6. Awareness generation
 - 7. India Plastic Challenge - Hackathon 2021 for Higher Educational Institutions’ students and Startups for developing alternatives to identified SUP items and digital solutions to plastic waste management.
- Notably, in the 4th UN Environment Assembly held in 2019, India had piloted a resolution on addressing single-use plastic products pollution.

10.2 IPCC Sixth Assessment Report (AR6) - 2021

Why in news?

The Intergovernmental Panel on Climate Change (IPCC) recently released the 1st part of its Sixth Assessment Report (AR6) titled ‘Climate Change 2021: The Physical Science Basis’.

What is the IPCC?

- It is established by the UNEP and the World Meteorological Organization in 1988.
- It is a body of world’s leading climate experts.
- It provides reports on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.
- Its first report in 1990 on consequences of rising greenhouse gas (GHG) emissions led to the forming of UNFCCC in 1992.

- Since then, reports have been produced roughly every 7 years.

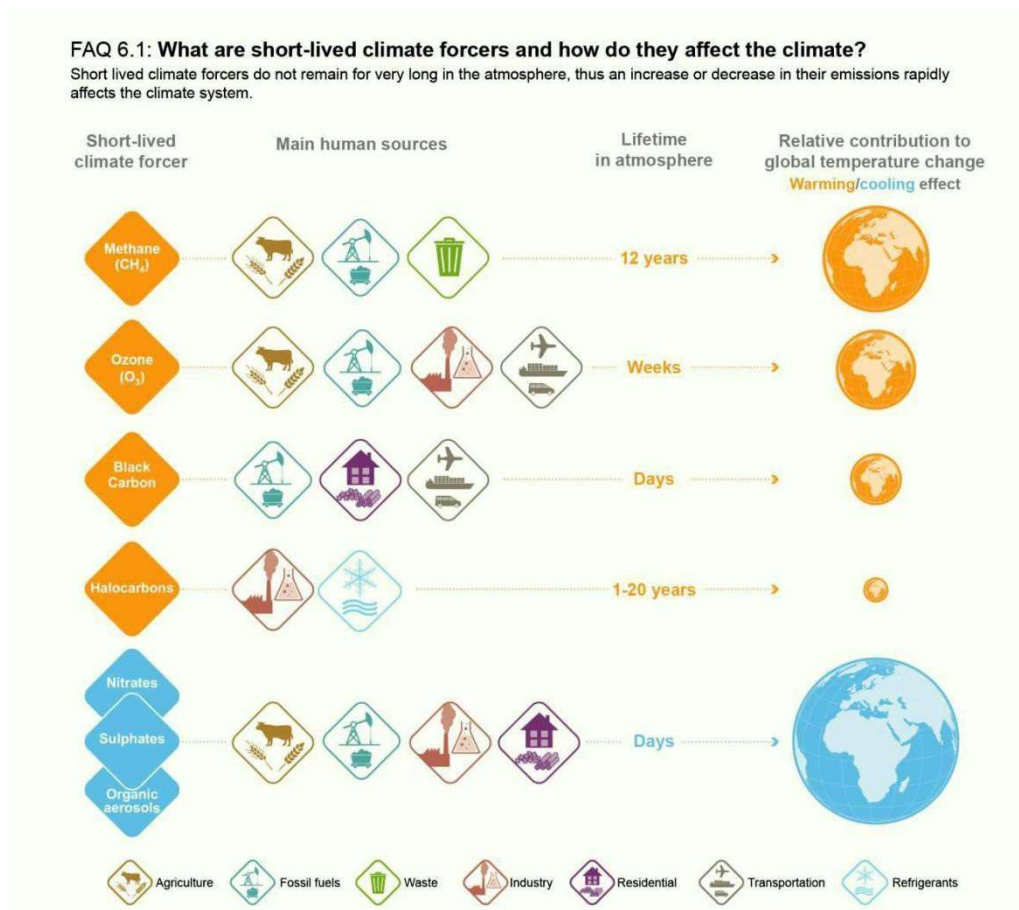
What are the key factors of climate change based on the report?

Human Activities

- The combined contribution to global warming by natural factors, such as the sun and volcanoes, is now estimated to be close to zero (negligible).
- 1.07°C out of the 1.09°C warming is due to GHG associated with human activities.
- Thus, almost 100% of global warming has been caused by humans.

Emissions

- CO₂ levels were greater in 2019 than they had been in – at least 2 million years."
- Methane and nitrous oxide (2nd and 3rd major contributors of warming respectively) levels are their highest in at least 800,000 years.
- CH₄ stays in the atmosphere only for a fraction of time compared to CO₂, but is far more efficient at trapping heat.
- Human-induced sources of methane
 1. consuming fossil fuels
 2. leaks from natural gas production, coal mining and landfills
 3. livestock and manure handling



- Aerosols contribute to reducing the impact of warming therefore drastic reduction of aerosols actually leads to an increase in warming.

Weakened Natural allies

- The CO₂ emissions notably increased by half since 1960.
- In the same period, forests, soil and oceans have absorbed 56% of all the CO₂ humanity has released into the atmosphere.

- But these carbon sinks which are natural allies in the fight against global heating are showing signs of saturation.
- The percentage of human-induced carbon they soak up is likely to decline as the century unfolds.

Temperature Rise

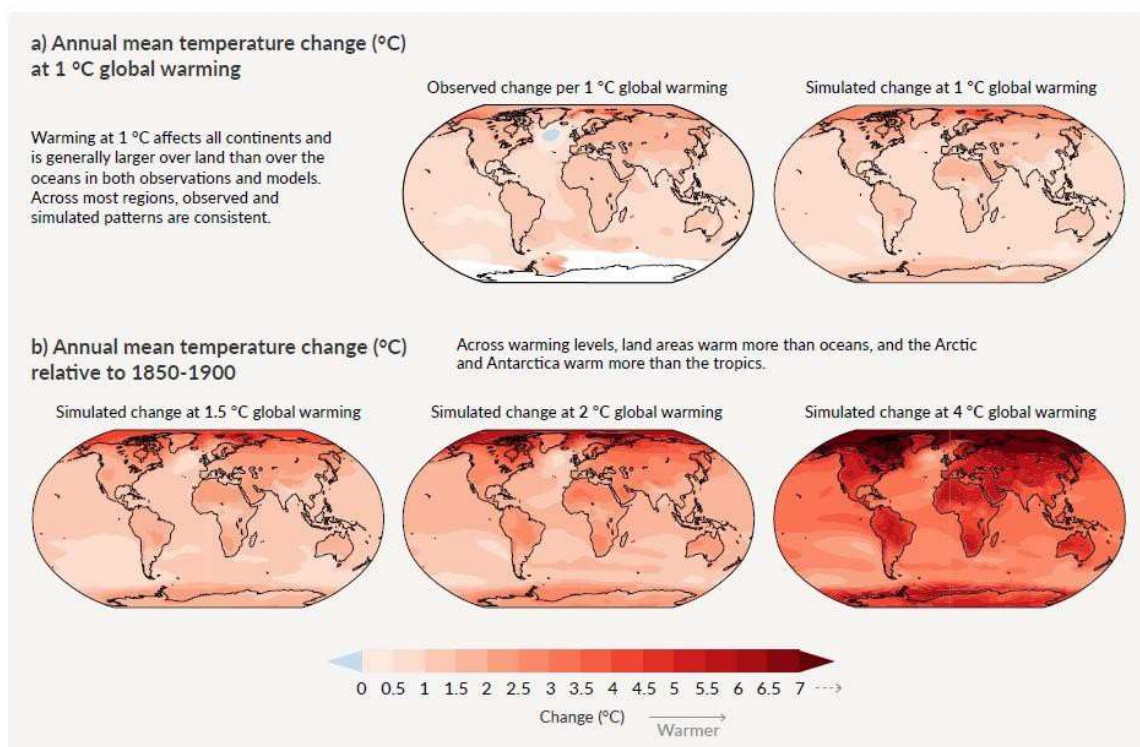
- 2011-20 was hotter than any period of time in the past 1.25 lakh years.
- Global surface temperature was 1.09°C higher in 2011-20 than between 1850-1900.

What are the impending threats?

Global Warming

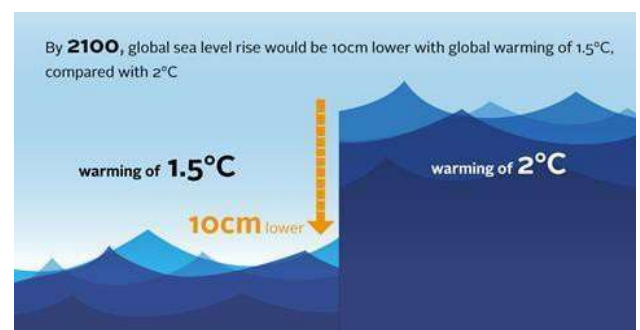
- Within the next two decades, temperatures are likely to rise by more than 1.5 °C above pre-industrial levels.
- Additional warming will weaken the Earth's carbon sinks present in plants, soils, and the ocean.
- Air pollution reduction and steep climate change mitigation are not complementary goals but require independent efforts over the short and medium term.
- Human-induced global warming has been more rapid in Africa than the rest of the world.

With every increment of global warming, changes get larger in regional mean temperature, precipitation and soil moisture



Sea level rise

- Sea-level rise has tripled compared with 1901-1971 in the last decade.
- Global oceans have risen about 20 cm since 1900.
- The Arctic Sea ice is the lowest it has been in 1,000 years.
- Crumbling and melting ice sheets atop Antarctica have replaced glacier melt as the main drivers of sea level rise.
- If global warming is capped at 2°C, the ocean watermark will go up about half a metre over the 21st century.



Impact on Cities

- Floods and sea-level rise in coastal areas & Ice sheet collapse or rapid changes in ocean circulations

- **Least developed countries** will increasingly bear the brunt of global warming
- **Other common threats** - increased heatwaves, more intense storms, and more serious droughts and floods etc
- With every 1°C rise in temperature, there will be a 7% increase in the intensification of extreme rain events.

New IPCC report is "a code red for humanity" - UN Secretary-General António Guterres

Impact on India

- With a 7,517 km coastline, India will face significant threats from rising seas
- Across 6 Indian port cities - Chennai, Kochi, Kolkata, Mumbai, Surat and Visakhapatnam - 28.6 million people will be exposed to coastal flooding.

What is the 1.5°C mark that IPCC advocates?

The 2015 Paris Agreement set the goal to limit global warming to well below 2°C, compared to pre-industrial levels, in this century.

It also sets 1.5°C as an **aspirational target** to channelize countries' efforts.

- Temperatures have now risen by about 1.1°C since the period 1850 to 1900.
- Even if we start reducing emissions now, we will still overshoot the 1.5°C mark by 2030. But we will see a drop in temperatures to around 1.4°C.

Will 1.5°C level address all climate risks?

- It will take a lot of time for nature to heal; 20-30 years to see global temperatures stabilise.
- So, some long-term impacts of warming that are already in line are likely to be witnessed - Sea level rises, Melting of Arctic ice, Warming and acidification of the oceans.
- Nevertheless, the 1.5°C level will represent a much smaller risk than 2°C.
- And notably, this report is likely to be the last from the IPCC while there is still time to stay below 1.5°C.

What does IPCC call for?

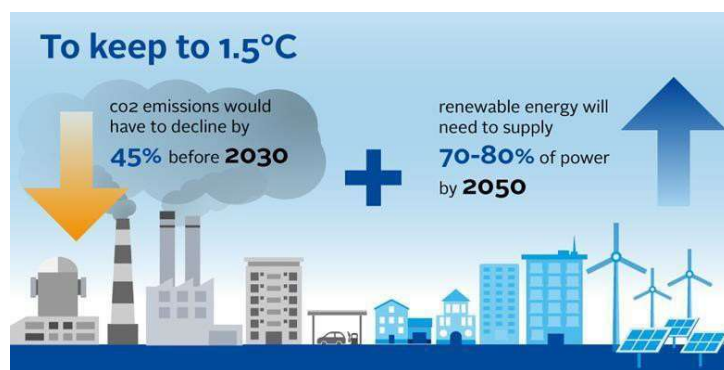
Emission Control

- IPCC has recommended that countries strive to achieve **net zero emissions** i.e no additional greenhouse gases were emitted by 2050.
- Drastic cuts in GHG emissions are needed this very decade (2021-2030).
- End to new coal plants and new fossil fuel exploration and development.
- Efforts of governments, investors and businesses towards a low-carbon future.

Cumulative Emissions

- Reaching net zero alone is not enough to reach the 1.5°C target.
- Historical cumulative emission i.e total emission by each country throughout the industrial phase is the cause of the climate crisis that the world faces today.
- They cannot be mitigated by promises of net zero 30 years from now.
- Therefore cumulative emissions should be factored in while calculating net zero.

Negative emissions



- Warming could be brought back down via –negative emissions| i.e., to cool down the planet by -
 1. sucking out or sequestering the carbon from the atmosphere
 2. stopping the use of fossil fuels and stopping deforestation
- But the technology at this end is not yet evolved and perfect, and need attention.

Peak by 2025

- Earth could exceed 1.5°C of global warming as soon as the early 2030s.
- So, staying below 2°C this century will happen only if emissions reach net zero by 2050.
- For this to happen, global emissions must peak sometime in the middle of this decade itself (by 2025).
- **Indigenous and Traditional knowledge** had played an increasing role in historical climatology.
 1. Peruvian fishermen had first thought of the name ‘El Niño’ for the now well-known climate phenomenon in the tropical eastern Pacific Ocean, that scientists link with the Southern Oscillation.
 2. Inuit communities had contributed to community-based monitoring across the Arctic.
 3. Indigenous Australian knowledge of climatic patterns has been offered as a complement to observational records, such as those of sea-level rise.
- Such traditional knowledge must be assessed and integrated with scientific literature.

10.3 India’s Ratification of Kigali Amendment

Why in news?

India has decided to ratify the Kigali Amendment to the Montreal Protocol.

What is the Montreal Protocol (1989)?

- It is an international treaty that regulates the production and consumption of nearly 100 man-made chemicals referred to as ozone depleting substances (ODS).
- The ODS, when released to the atmosphere, damage the ‘stratospheric ozone layer’ that protects the earth against the harmful levels of UV radiation from the sun.
- It mandated the complete phase-out of chlorofluorocarbons or CFCs and other ODS.
- CFCs were gradually replaced, first by **hydrochlorofluorocarbons (HCFCs)**.
- Eventually, **hydrofluorocarbons (HFCs)** were introduced as non-ozone depleting alternatives to support the timely phase out of CFCs and HCFCs.

CFCs are a set of chemicals mainly used in the air-conditioning and refrigeration industry earlier.

Extensive use led to depletion of the ozone layer, and formation of an “ozone hole” over the Antarctic region.

What was the problem with HFCs?

- HFCs do not deplete the ozone but are **powerful greenhouse gases** (GHGs) with high Global Warming Potential (GWP).
- It is essential to phase out HFCs as-

1. Global warming is emerging as one of the biggest global challenges.
2. Air-conditioning demand is showing a significant increase, especially in countries like India.

The average GWP of 22 of the most used HFCs is about 2,500 times that of CO₂. If left unabated, HFCs might contribute to annual GHG emissions up to 19% by 2050.

So, what is the Kigali amendment?

- The Montreal Protocol was amended in 2016 (9th time) after negotiations in Kigali, the capital of Rwanda.

Group I: Rich & developed economies like USA and EU; Started phase down HFCs by 2019 and reduce it to 15% of 2012 levels by 2036

Group II: Emerging economies like China, Brazil start phase down by 2024 and reduce it to 20% of 2021 levels by 2045.

Group III: Developing economies and some of the hottest climatic countries like India, Pakistan, Iran, Saudi Arabia starts phasing down by 2028 and reduce it to 15% of 2024-2026 levels till 2047.

HFCs reduction as per the countries' commitments is estimated to reduce Earth's average surface warming by 0.5°C over pre-industrial era levels.

- It essentially enables the **gradual phase-down of hydrofluorocarbons**, or HFCs.
- The terms entered into force in 2019, and have been signed by more than 122 countries so far.

Why HFC is under the Montreal protocol if it is not an ODS?

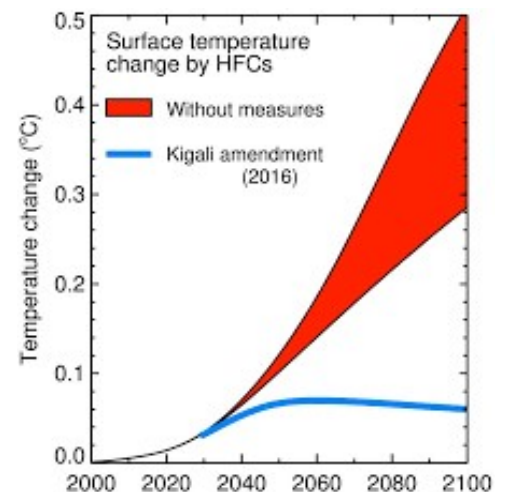
- Being non-ozone-depleting, HFCs reduction was under the 1997 Kyoto Protocol and 2015 Paris Agreement that addressed GHG emissions and climate change.
- But the Montreal Protocol has –
 1. far more effective and successful than the climate change instruments
 2. already resulted in the phase-out of 98.6% of ODS.
 3. to date, the only UN treaty ever that has been ratified by every country - all 198 UN Member States
- So, it was decided to use the Montreal Protocol to phase out HFCs.

How is India's performance?

- According to Climate Action Tracker, India is one of the few countries whose actions are compatible with keeping warming below 2°C.
- The climate actions of different countries are rated as below:
 1. Australia, Brazil, Canada, the UK and all of Europe - 'Insufficient'
 2. China, Japan and South Africa - 'Highly insufficient'
 3. Argentina, Russia, Saudi Arabia and Turkey - 'Critically insufficient'
- India recently crossed the milestone of 100 GW of installed renewable energy capacity.
- India will also draw up a national strategy for phase-down of HFCs by the year 2023 in 'consultation with all industry stakeholders.'
- Amendments to the Ozone Depleting Substances (Regulation and Control) Rules will be done by mid-2024.
- Also read about - [India Cooling Action Plan](#)

What are the concerns?

- Overall energy policy pushes for both renewable and fossil-fuel-based energy production.
- E.g., Draft National Electricity Policy 2021 said India would build more **coal power plants** given its cost-effectiveness.
- Centre's attempts to allow violators to 'pay and pollute' undermines the other efforts.
- Fossil fuel producers, mostly from Russia, US and the Middle East, have begun entering India, seeing it as one of the last big markets for fossil fuels.
- These realities suggest that India's energy transition will see a delay.



11. INTERNAL SECURITY

11.1 UNSC Debate on Maritime Security

What is the issue?

- India convenes an open debate of the UN Security Council (UNSC) on enhancing maritime security.
- In this regard, here is a look at the challenges and priorities for India with respect to the security of the Indian Ocean Region (IOR).

What are the challenges?

- The Indian Ocean region transports 75% of the world's maritime trade and 50% of daily global oil consumption.
- India has a long coastline of over 7,500 km.
- Climate-related events and piracy threats.

What is the SAGAR policy in this regard?

- India's Security and Growth for All (SAGAR) policy, unveiled in 2015, proposes an integrated regional framework to meet the security objectives in the Indian Ocean.
- 5 pillars of the SAGAR policy are:
 1. India's role as a net security provider in the Indian Ocean region (IOR).
 2. Active engagement with friendly countries in the IOR.
 3. Developing a network to take effective collective action for advancing peace and security.
 4. More integrated and cooperative focus on the future of the IOR; enhance the prospects for the sustainable development of the IOR countries
 5. The primary responsibility for peace, stability and prosperity in the IOR would be on those – who live in this regionl.

What are the highlights of the UNSC debate?

- It revives focus on the enforcement of UNCLOS's provisions on freedom of navigation, sustainable exploitation of maritime resources, and peaceful resolution of disputes.
- There were allegations of abuse of maritime resources and disrespect of territorial sovereignty rights of nations.
- These were mainly against the U.S., on the one hand, and China and Russia on the other.
- The debate brought to the fore new challenges to peace and security including from non-state actors.
- India brought to the forum a five-prong plan to enhance maritime security worldwide through cooperation. These are:
 1. removing barriers to legitimate maritime trade
 2. settling maritime disputes peacefully and based on international law
 3. jointly facing natural disasters and maritime threats created by non-state actors
 4. preserving maritime environment and resources
 5. encouraging responsible maritime connectivity

What are the key priorities in enhancing maritime security?

- **Securing the sea lanes of communication (SLOCs)** - The debate must focus on ensuring equal and unrestricted access to SLOCs by states, while resolving differences through peaceful means.
- In the Indian Ocean, 3 major SLOCs that play a crucial role in the energy security and economic prosperity –
 1. SLOC connecting the **Red Sea to the Indian Ocean** through the **Bab al-Mandab** (transports the bulk of Asia's international trade with its major trading partners in Europe and America)

2. SLOC connecting the **Persian Gulf to the Indian Ocean** through the Strait of Hormuz (transporting the bulk of energy exports to major import destinations like India, ASEAN, and East Asia)
 3. SLOC connecting the **Indian & Pacific Oceans** through the Straits of Malacca (integral to the smooth flow of trade with ASEAN, East Asia, Russia's Far East and the US)
- **Sharing data on threats to commercial shipping** - India established an International Fusion Centre (IFC) for the IOR in Gurugram in 2018.
 - It is jointly administered by the Indian Navy and Indian Coast Guard, and works for generating Maritime Domain Awareness on safety and security issues.
 - 40 international liaison officers from partner countries will eventually be located at the IFC.
 - **Others** - Increasing role of the private sector
 - Using the maritime domain to provide the critical submarine fibre-optic cables to support Digital Economy.

What lies ahead?

- UNSC should endorse a multiple stakeholder approach, which would set a paradigm for upholding -multi-dimensional security
- UNCLOS is the only comprehensive framework of laws available to maritime powers to assert their rights.
- So India must advocate for ratification of UNCLOS by all major maritime powers, including the U.S.

PRELIM BITS

12. HISTORY, ART & CULTURE

Malabar Rebellion of 1921

August 20, 2021 marks the centenary of the Malabar rebellion or the Moplah (Muslim) riots of 1921.

- Malabar rebellion had been an uprising of Muslim tenants (Moplahs) against local Hindu landlords (Jenmis) and British rulers.
- The uprising, which began as part of the Khilafat Movement, took place in regions which are under the Malappuram district, Kerala.
- It was an armed revolt led by Variyamkunnath Kunjahammed Haji.
- It has been perceived as one of the 1st nationalist uprisings in southern India. It has even been described as a peasant revolt.
- In 1971, the Kerala government had included the participants of the rebellion in the category of freedom fighters.
- **Impacts** - The rebellion of Mappilas inspired by religious ideology and a conception of an alternative system of administration - Khilafat government - dealt a blow to the nationalist movement in Malabar.
- Fanaticism of rebels, foregrounded by the British, fostered communal rift and enmity towards the Congress.

Narsinh Mehta

A documentary called „Gandhi's Song' sheds new light on the saint who inspired the Mahatma Gandhi.

- Mahatma Gandhi's favourite bhajan, 'Vaishnav jan to', was written by Narsinh Mehta [Narsi Mehta/Narsi Bhagat (1414-1480)].

Vaishnav jan to

- This bhajan was first introduced by Gandhi to fellow residents of the Phoenix Settlement and Tolstoy Farm in South Africa around 1907.
- This bhajan was played in all his prayer meetings and was Gandhi's moral weapon.
- It is at the epicentre of his Ahimsa philosophy.

- He is a 15th Century poet-philosopher of the Vaishnava sect, from the Bhakti era who hailed from Junagadh, Gujarat.
- Born in an upper-caste family, Narsinh has "angered" his community by "mingling" with everyone and considering all humanity as equal.
- Narsinh wrote in ecstasy about Krishna, and he is known as an 'Adi Kavi' or 'the primary poet' of Gujarat.
- He is known for his literary forms called "pada (verse)", "Akhyana" and "Prabhatiya" (morning devotional songs).

Ancient Dagger Found in Tamil Nadu

As a part of an excavation effort that seeks to shine a light on the Keeladi civilization, a rusted iron dagger preserved in a burial urn was discovered in Konthagai village, Tamil Nadu.

- Konthagai is considered as a burial site for the Keeladi civilization, as burial urns filled with bones, weapons and other objects were discovered.
- This type of weapon was used by warriors during the Sangam period (3rd century BCE - 3rd century CE).
- Based on the archaeological evidence, some researchers now say the Sangam period began earlier than previously thought, around 600 B.C.E.

Keeladi Civilization

- It is also referred to as the Vaigai civilization, named after a nearby river Vaigai.
- **Came from IVC** - Discoveries at Keeladi suggest that the people who lived there may have travelled south from the Harappan or Indus Valley civilization (as it declined) to start new lives.
- The civilization was an indigenous, well developed self-sustaining urban culture with an industry and Tamil-Brahmi script, indicating that the people of that era were highly literate.
- Evidence of ancient industrial production are spinning and weaving tools, cloth dyeing operations, brick kilns, and ceramic workshops.
- **Second urbanization** - Discoveries date to around 500 B.C., when an agricultural surplus allowed people to build urban centers in what's known as the subcontinent's –second urbanization.
- [The name reflects a contrast with the much earlier -first urbanization of the Indus Valley civilization that began 2500 BCE.]
- Previously, it was believed that the second urbanization happened along the Central Ganges Plain in northern India.
- But, new evidence suggests a similar phenomenon occurred in the south as well.

13. GEOGRAPHY

Great Unconformity of the Grand Canyon

A new study comes closer to solving a puzzle called the "Great Unconformity" of the Grand Canyon.

- First noted by John Wesley Powell in 1869, the Great Unconformity is a geologic feature of the Grand Canyon.
- Great Unconformity is a **missing gap of time** (more than 1 billion years) in the **rock record** of the Canyon that covers almost 2 billion years of Earth's past.
- The new study reports that a series of small yet violent faulting events may have rocked the region during the breakup of an ancient supercontinent called Rodinia.
- The resulting havoc likely tore up the earth around the canyon, causing rocks and sediment to wash away and into the ocean.

- These findings could help fill in missing pieces of what happened during this critical period for the Grand Canyon.

Thermo Chronology

- In the above study, to explore the transition in the rock layers, a method called ‘_thermo chronology’ was employed.
- Thermochronology is the science and practice of inferring thermal histories of minerals and rocks from chemical, isotopic, or physical properties of minerals that are sensitive to both temperature and time.
- It tracks the history of heat in stone.
- When geologic formations are buried deep underground, the pressure building on top of them can cause them to get toasty.
- That heat, in turn, leaves a trace in the chemistry of minerals in those formations.

Cyclones over Arabian Sea More Frequent

- IMD Study based on 50-year dataset (1970-2019) of extreme weather events has shown that there has been an increased occurrence of extreme weather events, including severe cyclonic storms in recent decades.
- There has been a significant rise in mean temperature across the globe, which is expected to trigger more intense meteorological events.
- Analysing the past data of cyclones over the North Indian Ocean (Bay of Bengal and Arabian Sea) during the period 1891–2020 shows that the frequency of extremely severe cyclonic storms has
 1. Increased in recent few years over the Arabian Sea since 1990, and
 2. Remained the same over the Bay of Bengal.

Atlantic Meridional Overturning Circulation (AMOC)

- This major ocean current, to which also the Gulf Stream belongs, may have been losing dynamic stability in the course of the last century.
 - AMOC transports warm water masses from the tropics northward at the ocean surface and cold water southward at the ocean bottom.
- As AMOC influences weather systems worldwide, a potential collapse of this ocean current system could have severe consequences.
- It is known from Earth's paleoclimate proxy records that the AMOC can exhibit a substantially weaker mode of operation (in addition to the currently attained strong mode).
- This **bi-stability** implies that abrupt transitions between the two circulation modes are in principle possible.
- The AMOC is currently at its weakest in more than 1000 years.
- Because the loss of dynamical stability would imply that the AMOC has approached its critical threshold, beyond which a substantial and in practice likely irreversible transition to the weak mode could occur.
- The fingerprints that AMOC left in sea-surface temperature and salinity patterns of the Atlantic ocean also suggests that the AMOC weakening during the last century may be associated with a loss of stability.
- This loss of the dynamic stability is caused due to many factors like global warming; freshwater inflow from the melting of the Greenland ice sheet, melting sea-ice, increasing precipitation and river run-off; etc.
- Freshwater is lighter than saltwater and reduces the tendency of the water to sink from the surface to greater depths, which is one of the drivers of the overturning.

Hurricane Ida

It is a Category 4 storm that has hit on the same date as the Hurricane Katrina that ravaged Louisiana and Mississippi in 2005.

- Hurricane Ida will most definitely be **stronger** than Katrina, the costliest storm in American history.
- Ida is coming to the same general place of Katrina from a slightly different **direction**.

- Storms that are bigger in width have larger storm surge because of the broader push of the water. They also cause huge damage.
- Ida has the potential to be more of a natural disaster whereas the big issue in Katrina was more of a man-made one because of levee failures.
- [A levee breach or levee failure is a situation where a levee fails or is intentionally breached, causing the previously contained water to flood the land behind the levee.]
- **Rapid intensification** - Ida was fed by the eddy of the Loop Current, going from 169 kph winds to 241 kph winds in just 8 hours.
- The Loop Current is the deep patch of incredibly warm water.
- It takes warm water off the Yucatan Peninsula does a loop in the Gulf of Mexico and spins up the eastern edge of Florida into the Gulf Stream.
- Normally when a storm intensifies or stalls it takes up all of the region's warm water and then hits colder water that starts to weaken the storm or at least keeps it from further strengthening.
- Ida is gaining power over a water area with above 26 degrees Celsius) more than 150-m deep. It has started the process of eyewall replacement.

Eyewall Replacement

- After a hurricane rapidly intensifies, it becomes so strong and its eye so small that it often can't quite keep going that way.
- So, it forms an outer eyewall and the inside eyewall collapses, which is called eyewall replacement.
- When a new eyewall forms, often a storm becomes larger in size but a bit weaker.

Adi Tribes

- Adi tribe of Adi-Pasi, Arunachal Pradesh is a Scheduled Tribe under Article 366 of the Constitution.
- They came from southern China in the 16th century and speak the Tibeto-Burman language.
"Adi-Pasi or Adi hills (adi means 'hill' or 'mountain top'). Historically, this region was known as Abor hills."
- The tribe divides into two main divisions - the Bogum and Onai.
- Adi Tribe is a Scheduled Tribe under Article 366 of the Constitution.
- Adi Tribe's reputation as **fierce warriors**, and the inhospitable terrain in which they live, have ensured the survival of Adi culture for centuries.
- **Religion** - Adi practice animism (or spirit-based religion).
- Their main god is Dionyi-Polo (which roughly translates as 'Sun-Moon'), the eye of the world; there is also a host of other spirits and deities.
- **Festivals** of the Adi tribes,
 1. Harvesting festival 'Solung' and
 2. Hunting festival 'Aran'.
- **Dance** - Popir is the indigenous dance of the Adi tribe. Teams of young girls in perfect rhythmic unison perform the 'Phoning' dance of Adis.

14. POLITY

Definition of Minority

- The Central Government notifies minority communities at the national level under the National Commission for Minorities (NCM) Act, 1992.
 - The Government has enacted the NCM Act, 1992 to constitute a [National Commission for Minorities](#).

- The term "minority" is not defined in the Indian Constitution. However, the Constitution recognises religious and linguistic minorities.

Religious Minorities

- Six communities notified as minorities under the Section 2 (c) of NCM Act are Christians, Sikhs, Muslims, Buddhists, Parsis and Jains.
- Notification of any community specific to a State as minority community within a State comes under the purview of the State concerned.
- **Article 25 (1)** - People's freedom of conscience and right to freely profess, practise and propagate religion.
- **Article 26** - Right of every religion or any section to establish and maintain institutions for religious and charitable purposes, manage its own religious affairs, and own, acquire and administer property.
- **Article 28** - People's freedom to attend religious instruction or religious worship in educational institutions.

Linguistic Minorities

- As per the Commissioner for linguistic minorities, Linguistic Minorities are group of people residing in the territory of India or any part thereof having a distinct language or script of their own.
- The language of the minority group need not be one of the 22 languages mentioned in the Eighth Schedule of the Constitution.
- In other words, linguistic minorities,
 - At the State level mean any group of people whose mother tongues are different from the principal language of the State, and
 - At the district and taluka/tehsil levels, different from the principal language of the district or taluka/tehsil concerned.
- Linguistic minorities are identified by the respective States/UTs.
- **Article 350-B** inserted by the 7th Constitutional (Amendment) Act 1956 to provide for a Special Officer for Linguistic Minorities appointed by the President of India.
- This Special Officer would investigate all matters relating to the safeguards provided for linguistic minorities under the Constitution.

Common Provisions

- **Article 29** - Right of any section of the citizens residing in India with a distinct language, script or culture of its own to conserve it.
- It grants protection to both religious minorities as well as linguistic minorities.
- Also, the Supreme Court held that the scope of this article includes minorities as well as the majority, as the word 'section of citizens' is used.
- **Article 30** - All minorities shall have the right to establish and administer educational institutions of their choice.
- The protection under Article 30 is confined only to minorities and does not extend to any section of citizens (as under Article 29).

National Commission for Minorities

- It is a forum for appeal, set up by the Government to safeguard the rights and interests of India's minority communities.
- This statutory body was set up in 1993 under the National Commission for Minorities (NCM) Act, 1992.
- Section 2 (c) of NCM Act, 1992 stipulates that 'Minority' for the purposes of the Act, means a community notified as such by the Central Government.
- NCM consists of a Chairperson, a Vice-Chairperson and five members and all of them shall be from amongst the minority communities.

- **Functions** of the Commission as laid down in Section 9(1) of the Act are related to the six notified minority communities i.e. Jain, Parsi, Sikh, Christian, Buddhist and Muslim.
- The functions of NCM broadly include
 1. Evaluate the progress of the development of minorities under the Union and States;
 2. Monitor the working of the safeguards provided in the Constitution and in laws enacted by Parliament and the State Legislatures;
 3. Make recommendations for effective implementation of safeguards for the protection of the interests of minorities by the Central Government or the State Governments;
 4. Look into complaints on deprivation of rights and safeguards of minorities and take up such matters with appropriate authorities;
 5. Cause studies to be undertaken into problems arising out of any discrimination against minorities and recommend measures for their removal;
 6. Conduct studies, research and analysis on the issues relating to socio-economic and educational development of minorities;
 7. Suggest appropriate measures in respect of any minority to be undertaken by the Central Government or the State Governments;
 8. Make periodical or special reports to the Central Government on any matter pertaining to minorities and in particular difficulties confronted by them; and
 9. Any other matter which may be referred to it by the Central Government.

National Commission for Women

- The Central Government nominated the Chairperson of the National Commission for Women (NCW), as per the Section 3 of NCW Act, 1990,
 1. For another term of 3 years or
 2. Till the age of 65 years or
 3. Until further orders, whichever is the earliest
- NCW is a statutory body in 1992 under the NCW Act, 1990, based on the recommendations of the Committee on Status of Women in India (1974).
- Its functions are to:
 1. Review the constitutional and legal safeguards for women.
 2. Recommend remedial legislative measures.
 3. Facilitate redressal of grievances.
 4. Advise the Government on all policy matters affecting women.
- NCW publishes a monthly newsletter, Rashtra Mahila, in both Hindi and English.
- Subjects of their campaigns have included dowry, politics, religion, equal representation for women in jobs, and exploitation of women for labour.

Fast Track Special Courts

- The Union Cabinet has approved the continuation of Fast Track Special Court (FTSCs) including exclusive POCSO Courts from 2021 to 2023.
- The Central Share is to be funded from [Nirbhaya Fund](#).
- The enactment of Criminal Law (Amendment) Act, 2018 by the Central Government led to the establishment of FTSCs in 2019 as Centrally Sponsored Scheme.
- FTSCs are dedicated courts that ensure swift dispensation of justice and, it strengthens the deterrence framework for sexual offenders.
- Currently covering 28 States, it is proposed to be expanded to cover all 31 states which are eligible to join the Scheme.

History of Indian Flag

- The first national flag (with 3 horizontal stripes of red, yellow and green) was hoisted on August 7, 1906, at the Parsee Bagan Square, Calcutta.
- In 1921, Pingali Venkayya met Mahatma Gandhi and proposed a basic design of the flag, consisting of two red and green bands.
- After undergoing several changes, the Tricolour was adopted as our national flag at a Congress Committee meeting in Karachi (1931).
- The Indian flag in its present form was adopted during a meeting of the Constituent Assembly held on July 22, 1947.
- The earliest rules for the display of the national flag were governed by,
 1. Emblems and Names (Prevention of Improper Use) Act, 1950 and
 2. Prevention of Insults to National Honour Act, 1971.

Prevention of Insults to National Honour Act, 1971

- This Act prohibits desecration of or insult to the national symbols - National flag, national anthem, Indian map and the Constitution.
- It punishes those who disrespect or bring in contempt to National Flag or Constitution of India with upto 3 years imprisonment, or fine, or both.
- Among the other acts which are considered to be of disrespect to the national flag are,
 1. Dipping the Tricolour in salute to any person or thing,
 2. Waving it at half-mast except on specific occasions, or
 3. Using it as a drapery in any form, except in state funerals or for the last rites of armed forces or other paramilitary forces,
- Putting any kind of inscription upon the flag, using it to cover a statue, a monument or platform, is considered disrespect to the Tricolour.
- The flag shouldn't be allowed to touch the ground or trail in water, or be put up in an inverted manner.

Flag Code of India 2002

- This Code allowed the unrestricted display of the Tricolour as long as the honour and dignity of the flag were being respected.
- Flag Code did not replace the pre-existing rules.
- But, it brings together all previous laws, conventions and practices.
- **Restrictions** - The Code has rules on display of the flag by public and private bodies and educational institutions, and rules for display of the flag by governments and government bodies.
- There will be no restriction on the display of flag by public and private bodies and educational institutions except to the extent as laid down in the above two laws (Acts).
- The Code mentions that the tricolour cannot be used for commercial purposes, and cannot be dipped in salute to any person or thing.
- It further states that whenever the flag is displayed, it should be distinctly placed and should –occupy the position of honourl.
- Damaged flag should be destroyed in private, preferably by burning or by any other method consistent with the dignity of the Flag.
- For official display, only flags that conform to the specifications of the Bureau of Indian Standards and bearing their mark can be used.

15. GOVERNMENT INITIATIVES

National Social Assistance Programme

- During the COVID time, the Government paid ex-gratia of Rs. 1000 (in two instalments) to the old aged, widows and divyangjan beneficiaries of NSAP under Pradhan Mantri Garib Kalyan Yojana Package (PMGKYP).
- NSAP is a social security and welfare programme that supports aged persons, widows, disabled persons and bereaved families on death of primary bread winner, belonging to **below poverty line** households.
- This program is implemented by the Ministry of Rural Development. It is implemented in rural areas as well as urban areas.
- It was brought within the umbrella of ‘Core of Core’ scheme in 2016.
- **Components** - NSAP at its inception in 1995 had three components,
 - a) National Old Age Pension Scheme (NOAPS),
 - b) National Family Benefit Scheme (NFBS) and
 - c) National Maternity Benefit Scheme (NMBS).
- [In 2001, NMBS was subsequently transferred from the Ministry of Rural development to the Ministry of Health and Family Welfare.]
- **Schemes under NSAP** - Presently NSAP comprises of five schemes.
- IGNOAPS (Indira Gandhi National Old Age Pension Scheme) - Monthly pension at the rate of Rs.300/- p.m to widows in the age group of 40 to 79 years.
- IGNWPS (Indira Gandhi National Widow Pension Scheme) - Monthly pension at the rate of Rs.200/- p.m to old age persons in the age group of 60 to 79 years.
- IGNDPS (Indira Gandhi National Disability Pension Scheme) - Monthly pension at the rate of Rs.300/- p.m to divyangjan in the age group of 18-79 years. Dwarfs will also be an eligible category for this pension.
- NFBS (National Family Benefit Scheme) provides a one-time lump-sum amount of Rs.20,000/- is paid to a bereaved family, on the death of primary breadwinner, aged between 18-60 years.
- Annapurna Scheme - Launched in 2000, this scheme provides food security to meet the requirement of those senior citizens who, though eligible, have remained uncovered under the IGNOAPS.
- Under the Annapurna Scheme, 10 kgs of food grains (wheat or rice) is given p.m. per beneficiary.
- For the first three schemes (IGNOAPS, IGNWPS and IGNDPS), the amount of pension is increased to Rs. 500/- p.m in respect of these beneficiaries on reaching the age of 80 years and above.

National Population Policy 2000

- The first National Population Policy (NPP) was framed by the Union Ministry of Health and Family Planning in 1976.
- It suggested a wide spectrum of programmes including raising the statutory age of marriage, introducing monetary incentives, paying special attention to improving female literacy, etc.
- Introduced in 2000, NPP 2000 provided a comprehensive framework to provide the reproductive and health needs of the people of India for the next ten years i.e. upto 2011.
- **Immediate objective** of the NPP is to address the unmet needs for contraception, health care infrastructure, and health personnel.
- It also aims to provide integrated service delivery for basic reproductive and child health care.
- **Medium-term objective** is to bring the Total fertility Rate (TFR) to replacement levels (TFR of 2.1) by 2010, by implementing inter-sectoral operational strategies.
- **Long-term objective** is to achieve a stable population by 2045, at a level consistent with the requirements of sustainable economic growth, social development, and environmental protection.

National Programme for Family Planning

- India was the first country in the world to have launched a National Programme for Family Planning in 1952.
- National Programme for Family Planning has undergone transformation in terms of policy and actual programme implementation.
- Under this Programme, various initiatives have been taken providing broad range of services mentioned as given below,
- **Mission Parivar Vikas** has been introduced in 2017 for substantially increasing access to contraceptives and family planning services in 146 high fertility districts in 7 high focus states.
- **Expanded Contraceptive Choices** - Contraceptives basket has been expanded by including new contraceptives namely Injectable contraceptive (Antara programme) and Centchroman (Chhaya).
 - This basket already has contraceptives like condoms, Combined oral contraceptive pills, Emergency contraceptive pills, Intrauterine contraceptive uterine device (IUCD) and Sterilization.
- **Compensation scheme for sterilization acceptors** provides compensation for loss of wages to the beneficiary and also to the service provider team for conducting sterilisation.
- **PPIUCD** (Post-partum Intrauterine contraceptive device) services are provided post delivery.
- **FP-LMIS** (Family Planning Logistics Management Information System) is dedicated software that ensures smooth forecasting, procurement and distribution of family planning commodities across all levels of health facilities.

Achievement of the above initiatives

- TFR has declined from 2.9 (2005) to 2.2 (2018). 28 out of 36 States/UTs have achieved the replacement level fertility of 2.1 or less.
- Crude Birth Rate has declined from 23.8 (2005) to 20.0 (2018).
- India's Wanted Fertility Rate has declined from 1.9 (NFHS III) to 1.8 (NFHS IV).

National River Conservation Plan

- It is a **Centrally Sponsored Scheme** of the Jal Shakti Ministry. Aim of the plan is to prevent pollution of rivers and improving water quality.
- The activities under National River Conservation Plan include,
 1. Sewage treatment plants for treating the diverted sewage,
 2. Low cost sanitation works to prevent the open defecation on riverbanks,
 3. Public awareness and public participation,
 4. Electric crematoria to ensure proper cremation of the bodies brought to burning Ghats.
- It is implemented by National River Conservation Directorate (NRCD).
- NRCD only provides financial assistance to the States/ local bodies to set up infrastructure for pollution abatement of rivers in identified polluted river stretches based on proposals received from the States/ local bodies.

National Child Labour Project

- In 2020-21, over 58,000 children were rescued across India from work, rehabilitated and mainstreamed under the Central Sector Scheme National Child Labour Project (NCLP).
- The District Project Societies (DPS) are set up at the district level under the Chairmanship of the Collector/District Magistrate for overseeing the implementation of this NCLP scheme.
- Under this Scheme, children in the age group of 5-8 years are directly linked to formal education system through a close coordination with the Sarva Shiksha Abhiyan.
- Children in the age group of 9-14 years are withdrawn from work and put into NCLP Special Training Centres.

- In these Centres, the children are provided with bridge education, vocational training, mid-day meal, stipend, health care etc. before being mainstreamed into formal education system.
- Under this Scheme, funds are provided directly to the DPS who in turn engage and allocate the funds to NGOs/Civil Societies Organisation etc. for running of Special Training Centres.

Ujjwala 2.0

Prime Minister launched the 2nd phase of Pradhan Mantri Ujjwala Yojana (PMUY) or Ujjwala 2.0 Scheme.

- Ujjwala 2.0 will provide maximum benefit to the inter-state migrants by providing only –Self Declaration as address proof to avail the benefit.
- Along with a deposit-free LPG connection, Ujjwala 2.0 will provide the first refill and a hotplate free of cost to the beneficiaries.

Pradhan Mantri Ujjwala Yojana

- PMUY was launched in 2016 by the Ministry of Petroleum and Natural Gas (MoPNG) as a flagship scheme.
- It was launched with an objective to make clean cooking fuel such as LPG available to the rural and deprived households which were otherwise using traditional cooking fuels like firewood, coal, etc.
- The scheme provides a financial support of Rs 1600 for each LPG connection to the women of the Below Poverty Line (BPL) families.
- Ujjwala 1.0 targeted to distribute 50 million (5 crore) LPG connections.
- In 2018, women from 7 other categories were brought under the purview of the PMUY:
 1. SC/ST, those under the Pradhan Mantri Awas Yojana (PMAY),
 2. Beneficiaries of the Antyodaya Anna Yojana (AAY),
 3. Forest Dwellers,
 4. Most backward classes,
 5. Tea gardens and
 6. Islands.
- While access to LPG gas stoves and cylinders has been given to 8 crore poor families in the scheme, the use of LPG cylinders remains low.

SAMRIDH Scheme

Start-up Accelerators of MeitY for pProduct Innovation, Development and growth (SAMRIDH) programme was launched by the Ministry of Electronics & Information Technology (MeitY).

- SAMRIDH will create a conducive platform to growing Indian Software Product start-ups that are ready for acceleration stage to enhance their products and secure investments for scaling their business.
- It will provide them with funding support, mentorship and other supports that are required by startups at this stage.
- The programme is being implemented by MeitY Start-up Hub (MSH).
- SAMRIDH will accelerate 300 **early-stage start-ups** that are close to the product development stage over a period of time.
 - This acceleration will be done by providing customer connect, investor connect, and international immersion in the next 3 years.
- The government has invited existing startup accelerators to partner with and will provide funding of up to ₹40 lakh to them.
 1. Only accelerators that have been in the incubation business for at least 3 years and supported more than 50 startups, with at least 10 having a non-public business will be able to apply for the scheme.
 2. They must also have operations in India and the necessary space and infrastructure to be eligible.
- The Scheme will facilitate equal matching investment by the accelerator / investor.

E-Prisons Project

- The e-Prisons have been operationalised in all States and Union Territories.
- E-Prisons Project, which aims at computerization of the functioning of prisons in the country, is assisted financially by the Home Ministry.
- e-Prisons data has been integrated with Police and Court system under the Inter-operable Criminal Justice System (ICJS).
- **Components of the e-Prisons Project**
 1. e-Prison Management Information System (MIS) is used at the prisons for their day to day regular activities.
 2. National Prisons Information Portal (NPIP) is a citizen centric portal maintained by States and UTs. It shows statistical data of various prisons in the country.
 - It can be accessed through NIC network, exclusively by authorized officials of Law Enforcement Agencies and Prisons, through ICJS.
 3. Kara Bazaar Portal showcases and sells the products manufactured in various prisons of the country by inmates.

Inter-operable Criminal Justice System

- It is a common platform for information exchange and analytics of all the pillars of criminal justice system - Police, Forensics, Prosecution, Courts, Prisons, etc.
- It aims to reduce errors and time taken in sharing of the information.
- Invested under the Crime and Criminal Tracking Network & Systems (CCTNS) project of the MHA, the ICJS enables a nationwide search on police, prisons & courts databases across all States/ UTs in India.

BH-Series

Ministry of Road Transport & Highways has introduced a new registration mark for new vehicles i.e. Bharat series (BH-series).

- This series will help in the **vehicle re-registration process** while moving from one state to another state.
- **Need for new registration** - Under section 47 of the Motor Vehicles Act, 1988, a person is allowed to keep the vehicle for not more than 12 months in any state other than the state where the vehicle is registered.
- But a new registration with the new state- registering authority has to be made within the stipulated time of 12 months.
- A passenger vehicle user takes the following steps to re-register a vehicle,
 1. No Objection Certificate from the Parent State for assignment of a new registration mark in another state.
 2. Assignment of new registration mark after the road tax on prorata basis is paid in the new State
 3. Application for refund of road tax in parent State on pro rata basis.



- **Registration Mark Format** in BH-series that will facilitate seamless transfer of vehicles is YY BH #### XX.
- YY is the code for Year of 1st registration, BH is the code for Bharat Series, #### for 0000 to 9999, XX for Alphabets (AA to ZZ).

- A vehicle bearing this BH-series registration mark shall not require assignment of a new registration mark when the owner of the vehicle shifts from one State to another.
- This vehicle registration facility under -BH-series will be available on voluntary basis to
 1. Defense personnel,
 2. Employees of Central & State Governments/ Central & State PSUs,
 3. Employees of private sector companies/organizations, which have their offices in 4 or more States/UTs.
- **Tax** - Motor Vehicle Tax will be levied for 2 years or in multiple of 2.
 1. This scheme will facilitate free movement of personal vehicles across States/UTs of India upon relocation to a new State/UT.
 2. After completion of 14th year, motor vehicle tax shall be levied annually which shall be ½ of the amount charged earlier for that vehicle.
 3. It further said that 2% extra charge will be levied for diesel vehicles, while electric vehicles will be charged 2% less tax.

Schemes for Women Farmers

- **30% expenditure** - The guidelines of the Ministry of Agriculture & Farmers Welfare mandated that States and other Implementing Agencies of various beneficiary oriented schemes to incur at least 30% expenditure on women farmers.
- The schemes include
 1. Support to State Extension Programmes for Extension Reforms,
 2. National Food Security Mission,
 3. National Mission on Oilseed & Oil Palm,
 4. National Mission on Sustainable Agriculture,
 5. Sub-Mission for Seed and Planting Material,
 6. Sub-Mission on Agricultural Mechanization &
 7. Mission for Integrated Development of Horticulture.
- **MKSP** - Ministry of Rural Development launched a scheme namely ‘Mahila Kisan Sashaktikaran Pariyojana (MKSP)’, as a sub component of DAY-NRLM.
- This scheme is being implemented since 2011 with the objective to empower women by making systematic investments to enhance their participation and productivity, as also create sustainable livelihoods for rural women.
- **Training** - In order to familiarize women with the latest techniques in agriculture and allied sectors, trainings are being imparted to women farmers under schemes of DA&FW and DAY-NRLM.
- **Other Initiatives**
 1. Supporting farm women’s food security groups,
 2. Undertaking macro/micro level studies in critical thrust area related to women in agriculture,
 3. Delivery of gender sensitization module on gender learning through training programmes,
 4. Compilation and documentation of gender friendly tools/technologies;
 5. Farm women friendly handbook and compilation of best practices/success stories of the women farmers.

Agro-Automatic Weather Stations

India Meteorological Department (IMD) has undertaken installation of Agro-Automatic Weather Stations (Agro-AWS).

- These stations will provide exact weather forecast to the people, especially the farmers.

- Agro-AWS are installed at 200 District Agromet Units (DAMUs) located in the Krishi Vigyan Kendras (KVKs) under Indian Council of Agricultural Research (ICAR) network.
- They are installed at DAMUs to augment block level Agromet Advisory Services (AAS) under Gramin Krishi Mausam Sewa (GKMS) scheme.

Gramin Krishi Mausam Sewa

- Under this scheme, weather-based operational AAS will be rendered by IMD jointly with ICAR and State Agricultural Universities.
- **Ministry** - Ministry of Earth Science
- This is a step towards weather-based crop and livestock management strategies and operations for the benefit of farming community.
- Based on the **medium range weather forecast** at district and block level generated under the scheme, Agromet Advisories are prepared.
- These **Agromet Advisories** are communicated by Agromet Field Units (AMFUs) co-located with State Agricultural Universities, and DAMUs at KVKs to the farmers on every Tuesday and Friday.
- IMD also monitors rainfall situation & weather aberrations and issues alerts & warnings to the farmers and the State Department of Agriculture from time to time under GKMS scheme.
- SMS-based alerts for extreme weather events and suitable remedial measures are issued to take timely operations by the farmers.
- Agromet Advisories are communicated to the farmers through multichannel dissemination system including SMS through,
 1. Kisan Portal launched by Agriculture Ministry and
 2. Private companies under Public Private Partnership (PPP) mode.

Meghdoot

- It is a mobile App launched by the Ministries of Earth Sciences and Agriculture.
- It was developed by Indian Institute of Tropical Meteorology, IMD and ICAR.
- It will provide location, and crop and livestock-specific weather-based agromet advisories to farmers in local languages.

Voluntary Vehicle-Fleet Modernisation Programme

- It is India's vehicle scrapping policy launched by the Ministry of Road Transport & Highways.
- It seeks to phase out unfit and polluting vehicles in an environment-friendly manner.
- The policy dictates that **automated fitness test** must be conducted on all the automobiles (run on diesel or petrol) over a certain age.
- All medium and heavy commercial vehicles over 15 years of age and all light motor vehicles (personal vehicles) over 20 years are marked for scrapping, if they fail an automated fitness test.
- These vehicles will be deregistered; the owner can choose to scrap them, but cannot use them on the road.
- If an old personal vehicle passes the fitness test, the owner can continue to use it, but the charges for re-registration will be much steeper.
- Currently, the testing is not mandatory. But the mandatory testing of heavy commercial vehicles will start in April 2023, and that of other categories of vehicles will start, in a phased manner, in June 2024.
- **Benefits** - This Policy would create a viable circular economy and bring value for all stakeholders while being environmentally responsible.

Circular Economy

- It is an alternative to a traditional linear economy (make, use, dispose).
- In circular economy (or circularity), resources (products, equipment and infrastructure) are kept in use for as long as possible, extract the maximum value from them whilst in use.

- Then the resources are recovered and they regenerate products and materials at the end of each service life.
- **Benefits** - A circular economy allows us to create more with less and to deliver greater value with less input. It improves productivity.
- It is a regenerative economic system that tackles global challenges like climate change, biodiversity loss, waste, and pollution.

Yuktdhara

Ministry of Rural Development launched a new geospatial planning portal called „Yuktdhara' under Bhuvan.

- Yuktdhara is a culmination of efforts of ISRO and Rural development Ministry made towards realising a Government to government (G2G) service for rural planning in support of decentralized decision making.
- This portal will facilitate planning of new Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) assets using Remote Sensing and GIS based information.
- It will serve as a repository of assets (Geotags) created under various national rural development programmes along with field photographs.
- This portal integrates wide variety of thematic layers, multi-temporal high resolution earth observation data with analysis tools.
- Planners will analyse previous assets under various schemes and facilitates identification of new works using online tools.
- Prepared plans will be then evaluated by appropriate authorities under State Departments.

Bhuvan Portal

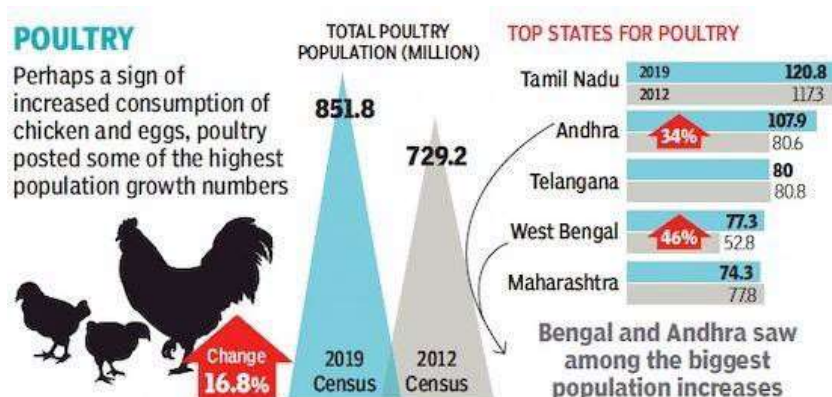
- It is the national geoportal developed by ISRO in 2009 comprising geospatial data, services and tools for analysis.
- It is used to find and access geospatial information and associated geographic services (display, editing, analysis, etc.) via the Internet.
- It provides visualisation services and Earth observation data to users in public domain.
- It also services several users for their Remote Sensing application needs.

New Rules on Poultry Farms

Department of Animal Husbandry, Dairying and Fisheries under Union Ministry of Agriculture has released a set of new guidelines for poultries.

- **Classification** - It classifies poultry farmers based on the number of birds in the farm
 - Small - 5,000-25,000 birds
 - Medium - 25,000 – 1 lakh birds
 - Large – more than 1 lakh birds
- **Restriction on location** - A farm should be set up
 - 500m away from a residential area,
 - 100m from rivers, lakes, canals and drinking water sources,
 - 100m from national highways and
 - 10-15m from village footpaths and rural roads.
- **Certificate of Consent** - In 2015, Central Pollution Control Boards has classified Poultry, hatchery and piggery as – Green I sector and exempted them from air, water and environmental protection laws.
- In the new guideline, a farmer of medium-sized poultry farm will have to obtain a certificate of Consent from State Pollution Control Board under the Water Act, 1974 and the Air Act, 1981.
- The permission will be valid for 15 years.
- Other guidelines include –

1. Poultry farm need to have ventilated room
 2. Burials of dead birds to be done 3m above the ground water level
 3. Proper space between birds and protection from rodents and flies
 4. Farmers of small- and medium-sized poultry farms will have to arrange for manure
 5. Water from the farm must be collected in a tank to be later used for horticulture
 6. Poultry faeces, which emit gaseous ammonia, hydrogen sulphide and methane, do not mix with running water or any other pesticide
- The Animal Husbandry Department will be responsible for implementing the guidelines at the state and district level.



16. BILATERAL RELATIONS

Border Fencing

- It is being erected on Indo-Pakistan border, Indo-Bangladesh border and Indo-Myanmar border by the Ministry of Home Affairs (MHA).
- So far, 5187 km length of International border has been fenced. Fencing lengths along Indo-Pakistan and Indo-Bangladesh Border are 2041 km and 3141 km respectively.
- Unfenced area includes non-feasible stretches, where fencing could not be constructed due to riverine and marshy land, are being covered through technological solution.

No-patrol Zones

- The details of a temporary no-patrol zone along the Line of Actual Control (LAC) between India and China differ from location to location.
- The new face-offs will be prevented by creating the 'no-patrolling zones' in which troops from neither side are allowed for a certain length of time.
- **Origin** - The idea of no-patrolling zone can be traced back to the border war of 1962 when China created a sort of buffer zone extending from where its forces were to where the LAC was.
- Again, it was used by India in 2013. Patrolling was suspended temporarily in 2014, again in Chumar, to resolve another standoff.
- **Zones** - Since 2020, patrolling point 17A (PP17A) will become the third region where Indian troops used to patrol before the standoff began in May 2020, and will temporarily not do so.
- The first such no-patrol zone had come up in Galwan Valley (PP14).
- These no-patrol zones cannot be kept fixed. It is guided by what infrastructure you have at any point of time.
- Replication of the zones could not be done blindly, as at a particular point either side could have a traditional permanent structure within the range decided for another point, beyond which they would not go.

- **Only Temporary** -The suspension of patrolling is not permanent. However, patrolling has been suspended till the standoff throughout eastern Ladakh is resolved.
- This means not only disengaging from the friction points, but also de-escalation.
 - De-escalation means both sides will pull back the additional troops that have been stationed in the region since last year.

Indo-US Nuclear Deal

- This deal, also known as the 123 Agreement or the US-India Civil Nuclear Agreement, was signed between the USA and India in 2005.
- **India** - Under the agreement, India agreed to separate its civilian and military nuclear activities.
- It also agreed to open up the civilian part to inspection by the International Atomic Energy Agency (IAEA).
- **US** - In return, the US offered to resume full nuclear trade i.e selling of reactors, Transfer of Technology, Uranium sale with India.
- The deal went through several complex stages including:
 1. Amendment of U.S. domestic law (Atomic Energy Act of 1954),
 2. Civil-military nuclear Separation Plan in India,
 3. India-IAEA safeguards agreement.
- It enabled American companies to build nuclear power reactors in India.
- Despite the agreements, there is no sign yet of any contract between an American company and the Indian authorities.

Greater Malé Connectivity Project

Maldives government signed an agreement with Indian company AFCONS, for the construction of the Greater Malé Connectivity Project by 2023.

- This is a follow-up agreement worth of 500 million US Dollar signed by India and Maldives in 2019.
- This project was funded by India in a grant of \$100 million, with a line of credit of \$400 million.
- [Line of Credit is not a grant but a ‘soft loan’ provided on concessional interest rates to developing countries, which must be repaid by the borrowing government.]
- This infrastructure project is the largest-ever by India in the Maldives, and also the biggest infrastructure project in the Maldives overall.
- It involves the construction of a 6.74-km-long bridge and causeway link that will connect the Maldives capital Malé with the neighbouring islands of Villingli, Gulhifalhu and Thilafushi.
- **Significance** - This project is significant because it facilitates inter-island connectivity in the country.

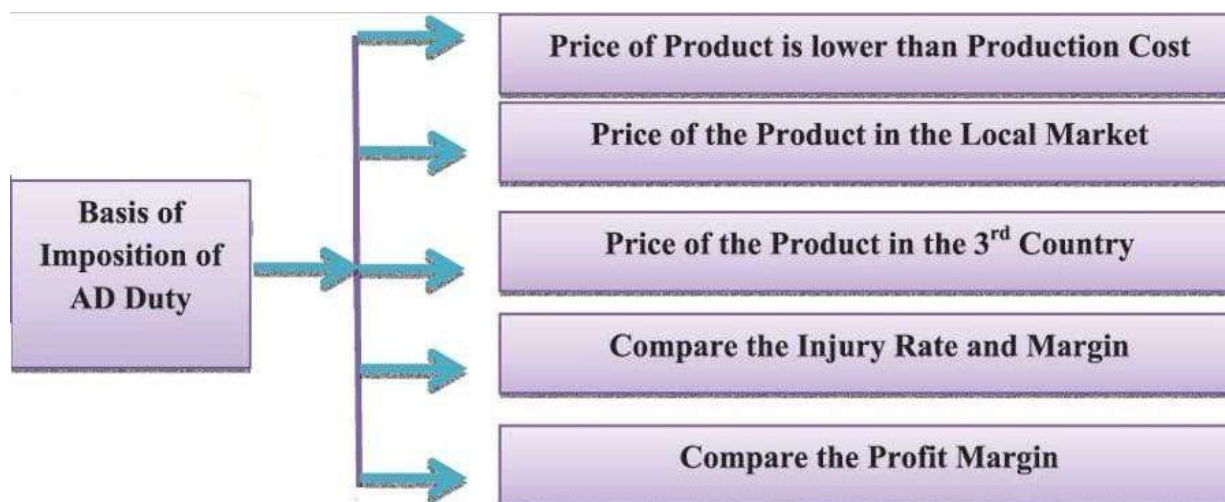
17. ECONOMY

Anti-Dumping Duty

The Union government revoked anti-dumping duty on viscose staple fibre originating in or imported from China and Indonesia.

- **Dumping** is a process wherein a company exports a product at a price that is significantly lower than the price it normally charges in its domestic market.
- This impacts the price of that product in the importing country, hitting the profits of local manufacturing firms.
- **Anti-Dumping Duty (ADD)** is a protectionist tariff that a domestic government imposes on imports that are priced below fair market value.

- [Countervailing Duty is also a protectionist tariff imposed on imports by a domestic government when it believes that the imports are subsidised by a foreign government and causing material harm to the domestic market.]
- ADD is imposed with the rationale that the products have the potential to undercut local businesses and the local economy.
- In India, ADD is levied and collected by the Directorate General of Trade Remedies.
- ADD is levied over and above the normal customs duty.
- It is valid for 5 years from the date of imposition unless revoked earlier.



Sunset Review

- If dumping continues even after the 5 years of ADD, the industry can apply for a sunset review/ expiry review for a further period of 5 years.
- Globally, once a sunset review is applied for, the ADD is extended for 1 year pending investigation.
- It can be initiated suo moto or on the basis of a duly substantiated request received from or on behalf of the domestic industry.

Difference	Customs Duty	Anti-Dumping Duty
Concept	Customs duties are there as a means of raising revenue and for overall development of the economy.	ADDs guard against the situation arising out of unfair trade practices.
Category	They fall in the realm of trade and fiscal policies of the Government.	Anti dumping and anti subsidy measures are trade remedial measures.
Purpose	To improve the government revenue & overall development of the economy.	To offset the injurious effect of international price discrimination.
Applicability	They are universally applicable to all imports irrespective of exporter & country of origin.	They are levied specifically against exporter / country.

Reverse Merger

- Stocks of certain small finance banks (SFBs) and their holding companies skyrocketed after the RBI permitted these SFBs to apply for a reverse merger with their holding companies.
- **Merger** is a corporate action where two companies decide to bring together their assets and liabilities to create a single entity that are bigger and better than either of them. It is usually proposed between equals.

- **Reverse merger** is a combination where a smaller company merges into a larger one, or a loss-making company merges into a profitable one.
- In the case of SFBs, the holding company is merged into the subsidiary bank. This type of merger is also referred to as downstream merger.
- **Importance** - Reverse merger proposal has made SFBs a better bet for investors. It could help investors unlock value in two ways by
 1. Eliminating dual listing of the SFBs and their holding companies.
 2. Warding off equity dilution on account of the mandated reduction in promoter holding.
- Downstream mergers could help dilute promoter stakes in these SFBs.

Difference Between CECA and CEPA

- Both Comprehensive Economic Cooperation Agreement (CECA) and Comprehensive Economic Partnership Agreement (CEPA) are economic agreements between two countries.
- These agreements are subject to the benefit of both countries, especially on the economic and trading side.
- CEPA is much broader and more complicated compared to CECA.

Particular	CECA	CEPA
Acronym	CECA - Comprehensive Economic Cooperation Agreement.	CEPA - Comprehensive Economic Partnership Agreement.
Word choice denotes degree of relationship between 2 parties	The word -Cooperation ¹ implies a cohesive but distant effort. It denotes a loose connection between two countries.	The word -partnership ¹ can entail a more personal and deeper relationship between two parties.
Focus	CECA deals mostly with the elimination or reduction of tariffs	CEPA's concerns are the same as CECA with the addition of investments and services.
Economic standing	CECA is the first step to accomplish CEPA.	CEPA is a result of the negotiations of 2 countries that started from CECA.

Oil Bonds

Finance Minister has said that it cannot reduce taxes on petrol and diesel as it has to bear the burden of payments in lieu of oil bonds issued by the previous government to subsidise fuel prices in 2012-13.

- Oil bonds are issued by the government to compensate oil marketing companies (OMCs) to offset losses that they suffer to shield consumers from rising crude oil prices.
- Before fuel prices were deregulated, petrol, diesel, cooking gas and kerosene were sold at subsidised rates.
- Instead of paying subsidy directly to oil marketing companies, the then government issued oil bonds (Rs 1.34 lakh crore) to the state-fuel retailers in a bid to contain the fiscal deficit.

Reasons for Deregulating Oil Prices

- Fuel price decontrol has been a step-by-step exercise.
 - The government freed up prices of aviation turbine fuel in 2002, petrol in 2010, and diesel in 2014.
- Prior to that, the government would intervene in fixing the price at which retailers were to sell diesel or petrol.
- This led to under-recoveries for oil marketing companies, which the government had to compensate for.
- The oil prices were deregulated to,

1. Make the prices **market-linked** i.e. linked to global crude prices,
 2. Unburden the government from subsidising prices, and
 3. Allow consumers to benefit from lower rates when global crude oil prices tumble.
- Price decontrol essentially offers fuel retailers (Indian Oil, HPCL or BPCL), the freedom to fix prices based on calculations of their own cost and profits.

Recapitalisation Bonds

These bonds issued by the Central government in 2017 will come up for redemption between 2028 and 2035.

- Recapitalisation bonds, issued by the government, will inject capital into state-owned banks (PSU banks) and other institutions that were stressed by bad loans.
- The money collected by the government goes to banks in the form of equity capital as the government increases its share of equity holding, thereby shoring up banks' capital reserves.
- The money invested by banks in recapitalisation bonds is **classified as an investment** which earns them an interest.
- This instrument does not impact the fiscal deficit, with only interest payment being reflected in deficit calculations.
- Banks once obtained funds, can write-off the bad assets (loans) by using the fund from recapitalisation.
- The government so far has issued recapitalisation bonds to public sector banks and EXIM Bank, IDBI Bank and IIFCL.
- To know more about the recapitalisation bonds, [click here](#).

ESG Bonds

Chinese internet giant Baidu has raised \$1 billion in a two-tranche, the US dollar sustainability bond, its 1st environment, social and governance (ESG) transaction.

- ESG Bond is a kind of mutual fund. Its investing is used synonymously with sustainable investing or socially responsible investing.
- This concept involves a complex mix of investors,
 1. Public pension funds and college endowments (a number of whom want to divest oil and gasstocks),
 2. Investors looking for other alternatives than stocks and bonds,
 3. Traditional types who fear that ESG ignores earnings potential.
- **Green bonds** are universally rated as the most "invested" ESG asset class (33%).
- They raise money for renewable energy, energy efficiency, clean transportation, green buildings, wastewater management and climate change adaptations.
- **Social bonds** (21%) are focused on food security and sustainable food systems, socioeconomic advancement, affordable housing, access to essential services, and affordable basic infrastructure.
- **Sustainability bonds** (22%) are a catch-all, and often refinance these other two categories.
- In India, the ESG Bond is regulated by Securities and Exchange Board of India (SEBI).
- SBI Magnum Equity ESG Fund is the 1st ESG mutual fund of India.

Factors Driving up Sensex

The Sensex crossed the 55,000 mark and hit a record high on sustained buying support by retail investors and mutual funds in intra-day trading.

- So, the retail investors must be extra vigilant and avoid putting money in stocks when valuations are high.
- **Factors powering the Sensex** - Retail investors are buying stocks without any serious consideration for value.

- When this increase ends, the new retail investors who have flocked to the market recently will be hit hard.
- Also, aided by new fund offers and bullish stock markets, equity mutual funds saw record inflows in the recent months. This money is also flowing into the stock markets.
- Further, the recent rally was not a broad-based rally as heavy profit booking was seen in midcap and smallcap stocks, while selling pressure appears to have eased now.
- The market rally is supported by the ample liquidity in the system and hopes of a sustained economic recovery.
- If the fund flow to the stock market continues, the rally will get further momentum.

Sugarcane Price being Static in Punjab

Price of sugarcane in Punjab, which is decided by Punjab government under its State Agreed Price (SAP) policy, has not been hiked since 2017-18.

- This despite the fact that the input cost for growing cane has gone up manifolds in these years.
- The neighbouring states like Haryana, Uttarakhand and UP have fixed prices higher than Punjab.
- Even the Fair and Remunerative Price (FRP), decided by the government of India, is increasing to some extent every year or in a couple of years but there is no hike in SAP in the state for the past four years.
- Punjab farmers are now demanding an increase in the SAP before the beginning of crushing.
- If the price of the cane is not increased this year the area under sugarcane will go down further in the coming planting season which is a big challenge for the much needed diversification in the state.

Fair and Remunerative Price

- FRP, which is fixed under sugarcane control order, 1966, is the Minimum price that sugar mills are supposed to pay to the farmers.
 - But main cane growing states determine their own SAP which is generally higher than the FRP.
- The FRP has been determined on the basis of recommendations of Commission for Agricultural Costs and Prices (CACP) and after consultation with State Governments and other stake-holders.
- It is used in sugarcane industry and is fixed by the government but is paid by the mill owner.
- Recommended FRP has been arrived at by taking into account various factors such as
 1. Cost of production,
 2. Overall demand-supply situation,
 3. Domestic and international prices,
 4. Inter-crop price parity,
 5. Terms of trade prices of primary by-products
 6. Likely impact of FRP on general price level and resource use efficiency.

Agriculture Export Policy 2018

- This Policy was framed with a focus on agriculture export oriented production, export promotion, better farmer realization and synchronization within policies and programmes of Indian Government.
- The Central Government has notified the guidelines of the Central Sector Scheme for implementation of Agriculture Export Policy in 2020.
- The Policy aims to **double agricultural exports** from present value to ~US\$ 60+ Billion by 2022 and reach US\$ 100 Billion after that.
- It aims to diversify the export basket, destinations and boost high value and value added agricultural exports **including the perishables**.
- **Strategic Recommendations** - Structural changes required to boost agricultural exports include general and commodity specific measures.

- Presence of robust infrastructure like Mega Food Parks, state-of-the-art testing laboratories and Integrated Cold Chains is critical component of a strong agricultural value chain.
- This involves pre-harvest and post-harvest handling facilities, storage & distribution, processing facilities, roads and world class exit point infrastructure at ports facilitating swift trade.
- Greater involvement of State Governments in Agriculture Exports
- **Operational Recommendations** - Involvement of small and medium farmers for entire value chain as group enterprises within cluster of villages at the block level for select produces.
- Marketing and promotion of ‘Brand India’. Attract private investments in export oriented activities and infrastructure.
- Agricultural R&D led by private industry along with higher infrastructure spends by the government will boost agricultural exports.
- Entrepreneurs to be supported to start a new Agri export venture during their initial period of establishment by the Agri-start-up fund.

Sovereign Right to Taxation

Finance Minister mentioned in Rajya Sabha about “keeping the sovereign right of India to tax absolutely intact.”

- The Constitution of India gives the government the right to levy taxes on individuals and organisations.
- It also makes it clear that no one has the right to levy or charge taxes except by the authority of law.
- Any tax being charged has to be backed by a law passed by the legislature or Parliament.
- This aspect is known as sovereign right to taxation.
- Taxes in India come under a 3-tier system - Central, State and local governments.
- VII Schedule of the Constitution puts separate heads of taxation under the Union and State list.
- There is **no separate head under the Concurrent list**, meaning Union and the States have no concurrent power of taxation.

Ministry of Statistics and Programme Implementation defines tax as a –pecuniary burden laid upon individuals or property owners to support the government, a payment exacted by legislative authorityl.

It said that a tax is –not a voluntary payment or donation, but an enforced contribution, exacted pursuant to legislative authorityl.

Context of FM’s Statement

- The government recently decided to withdraw the retrospective taxation amendment in the I-T Act introduced in March 2012, by the then UPA government.
- This move is believed to provide clarity to investors by removing a ambiguity on taxation laws.
- However, the government has stressed the need to establish its –sovereign right to taxationl.
- To know more about this issue, click [here](#)

Nidhi Company

Not a single company that is applying for „Nidhi under the Companies Act, 2013 (CA, 2013) and Nidhi Rules, 2014 could satisfy the requisite criteria for it to be declared as a Nidhi Company by the Central Government.

- Nidhi Company is registered under the CA, 2013 as a ‘Nidhi Company’ and notified so by Central Government under Section 620A of CA, 1956.
- The object of the company shall be **cultivating the habit of thrift and savings** amongst its members, receiving deposits from and lending to its members only for their mutual benefits.
- It is a non-banking finance company (**NBFC**) doing the business of lending and borrowing with its members or shareholders.
- As it is an NBFC, **RBI** has powers to issue directives for them related to their deposit acceptance activities.

- It works on the principle of mutual benefits that are regulated by the **Ministry of Corporate Affairs**.
- Requirements - A company to be incorporated under this Act as Nidhi shall be a Public Company with a minimum paid up equity share capital of 5,00,000/-
- No preference shares shall be issued.
- If preference shares had already been issued by a Nidhi Company before commencement of this Act, such preference shares are to be redeemed in accordance with the terms of issue of such shares.
- Recently, changes were suggested by "Sabanayagam Committee " on policies and regulatory framework of nidhi companies.

Kandla SEZ

- Situated on the Gulf of Kutch on the west coast of Gujarat, it is Asia's first Export Processing Zone (EPZ) and it is India's largest multi-product functional SEZ.
- It is the first Green SEZ to achieve the [Indian Green Building Council](#) Green Cities Platinum Rating for Existing Cities.

Debt Recast 2.0

According to the Crisil Ratings report, with the recovery in demand and growing confidence in economic growth, very few corporates have opted for or are looking for debt restructuring under RBI's Resolution Framework 2.0.

- The debt rating agency report said that barely 1% of eligible companies in Crisil's rating portfolio had opted for or were contemplating restructuring under the Resolution Framework 2.0.
- The findings came from an analysis of about 4,700 firms rated by the agency.
- Quick recovery in demand after moderation during the 2nd Covid-19 wave, and sanguinity around economic growth have led corporates to give the restructuring option a miss.
- The more localised and less stringent nature of restrictions during the second wave has meant relatively lower disruption in business activities compared to the first wave.
- So, the muted response is par for the course, he said.
- On May 5, the RBI had announced Resolution Framework 2.0 for borrowers, including individuals, small businesses, and MSMEs with an aggregate exposure of up to ₹25 crore, with some caveats.
- On June 4, the RBI raised the aggregate debt threshold to ₹50 crore.
- About 95% of firms that had opted for or were considering the scheme now, were rated in the sub-investment grade rating category.
- Most of these firms belong to the low-to-medium resilience sectors such as hospitality, educational services, textiles, construction and gems and jewellery.

Committee on Urban Co-operative Banks

The RBI's expert committee on urban co-operative banks (UCBs) has suggested a four-tiered structure to regulate them, based on size of deposits.

- This committee has proposed setting up an Umbrella Organisation (UO) to oversee co-operative banks.
- UO should be financially strong and be well governed by a professional board and senior management, both of which are fit and proper.
- As an alternative to mandatory consolidation, the Committee preferred smaller banks acquiring scale via the network of the UO.
- The Committee has also suggested that the UCBs should be allowed to open more branches if they meet all regulatory requirements.
 - If the UCBs do not meet the prudential requirements, the RBI should use the route of mandatory merger or reconstruction of UCBs to resolve UCBs.
- UCBs may be categorised into 4 tiers for regulatory purposes, based on the banks' cooperativeness, availability of capital and other factors,

- a) Tier 1 with all unit UCBs and salary earner's UCBs (irrespective of deposit size) and all other UCBs having deposits up to Rs 100 crore,
 - b) Tier 2 with UCBs of deposits between Rs 100 crore - 1,000 crore,
 - c) Tier 3 with UCBs of deposits between Rs 1,000 crore - 10,000 crore
 - d) Tier 4 with UCBs of deposits more than Rs 10,000 crore.
- The Committee has suggested that the minimum Capital to Risk-Weighted Assets Ratio (CRAR) for them could vary from 9% to 15% and for Tier-4 UCBs the Basel III prescribed norms.
 - It has also prescribed separate ceilings for home loans, loan against gold ornaments and unsecured loans for different categories of UCBs.
 - The panel said that the Supervisory Action Framework (SAF) should follow a twin-indicator approach instead of triple indicators at present.
 - It should consider only asset quality and capital measured through NNPA and CRAR.
 - The objective of the SAF should be to find a time-bound remedy to the financial stress of a bank.
 - If a UCB remains under more stringent stages of SAF for a prolonged period, it may have an adverse effect on its operations and may further erode its financial position.

One District One Product Scheme

Under Phase 1 of the scheme, a number of export-potential products from various districts have been selected.

- The objective of the scheme is to convert each district of the country into an export hub.
- It aims to improve market accessibility of the chosen product by identifying and solving problems in its respective supply chain to make it globally competitive.
- A dedicated team has been established to identify products from 739 districts.
- It will create a comprehensive plan on each product including product branding & scheme awareness, trade facilitation, e-commerce on boarding, and to create forward & backward market linkages.
- Director General of Foreign Trade is engaging with State/UT Governments to implement the initiative in a phased manner.
- District Export Promotion Committee (DEPC) is constituted in all Districts of India, except districts of the state of West Bengal.
- It is operationally merged with 'Districts as Export Hub' initiative.
- A number of products from several districts have been selected for the phase 1 of the scheme.

List of Products

- Jamnagari Bandhani - Handloomed textile product from Gujarat dating back to 6th Century AD.
- Kolhapuri Chappals - Karnataka and Maharashtra dating back to 12th CAD rule of King Bijjal of Bidar.
- Naga Mircha - One of the world's hottest chillies from Nagaland
- Lakadong Turmeric - World's finest turmeric from Meghalaya with the average curcumin content of 7%.
- Blue Pottery - Jaipur
- Markhana Marbels - Nagaur, Rajasthan
- Kashmiri Papier Mâche designed by Sakhta Artisans
- Machine parts - Tamil Nadu and
- Pharmaceutical produce - Andhra Pradesh

18. ENVIRONMENT

Rain at Greenland Summit

For the 1st time on record, the summit of Greenland received rain and not snow, just as temperatures at the spot went above freezing for the 3rd time in less than 10 years.

- As per the US National Snow and Ice Data Center, this was the heaviest rainfall that the Greenland received since record keeping began in 1950.
- The US's National Science Foundation maintains a Summit Station at the highest point on Greenland's ice sheet.
- [Summit Station is a research facility that observes changes occurring over the island as well as in Arctic weather.]
- Summit Station observed rain at the normally frigid summit, with the precipitation extending up to Greenland's southeast coast.
- Not only is water warmer than the usual snow, it's also darker - so it absorbs more sunlight rather than reflecting it away.
- Rain & high temperatures triggered extensive melting here, which is 7 times more than daily average observed at this time (August) of the year.
- Rapid ice melting will be running off into the ocean in volumes, thus accelerating global sea level rise.
- **Concern** - The UN's —code red climate report concluded that the burning of fossil fuels led to Greenland melting in the last 20 years.
- Arctic Ocean may witness ice-free summers by 2050 due to extreme climate interventions.
- If that happens, sea levels could rise by 20 feet, threatening low-lying cities around the world such as Mumbai, New York, etc.
- Rapid melting is also threatening polar bears, which have to make their way towards Greenland's interior from the coasts, where they usually find enough food.

Greenland

- Greenland is the world's largest island between the Arctic and Atlantic Oceans.
- 3/4th of its surface is covered with permanent ice sheet (656,000 sq. miles large.)

Ramsar Sites

Four wetlands are recognised from the Ramsar Secretariat as Ramsar sites - Sultanpur & Bhindawas (Haryana) and Thol & Wadhvana (Gujarat).

- With this, the number of [Ramsar sites](#) in India is 46 and the surface area covered by these sites is now 1,083,322 hectares.
- **Bhindawas Wildlife Sanctuary** is the largest wetland in Haryana.
- It is a human-made freshwater wetland.
- Over 250 bird species use the sanctuary throughout the year as a resting and roosting site.
- Globally threatened species found here are endangered Egyptian Vulture, Steppe Eagle, Pallas's Fish Eagle, and Black-bellied Tern.
- **Sultanpur National Park** supports more than 220 species of resident, winter migratory and local migratory water birds at critical stages of their life cycles.
- Species found here are,
 1. Critically endangered sociable lapwing, and
 2. Endangered Egyptian Vulture, Saker Falcon, Pallas's Fish Eagle and Black-bellied Tern.
- **Thol Lake Wildlife Sanctuary** lies on the Central Asian Flyway.
- It supports the threatened waterbird species,
 1. Critically endangered White-rumped Vulture, Sociable Lapwing,

2. Vulnerable Sarus Crane, Common Pochard and Lesser White-fronted Goose.
- **Wadhvana Wetland** provides wintering ground to migratory waterbirds, including the species that migrate on the Central Asian Flyway.
- Threatened or near-threatened species found here are,
 1. Endangered Pallas's fish-Eagle,
 2. Vulnerable Common Pochard, and
 3. Near-threatened Dalmatian Pelican, Grey-headed Fish-eagle and Ferruginous Duck.

Nagarjunasagar Srisailem Tiger Reserve

- **Location** - NSTR is India's largest tiger reserve that is present in the Nallamala ranges of the southern Eastern Ghats (AP and Telangana).
- River Krishna cuts the basin of this reserve.
- Most area is hilly terrain with plateaus, ridges, gorges and deep valleys that support the tropical mixed dry and moist deciduous forests.
- **History** - NSTR was notified in 1978 and became a tiger reserve under the protection of Project Tiger in 1983.
- In 1992, it was retitled as Rajiv Gandhi Wildlife Sanctuary.
- Two wildlife sanctuaries constitute the reserve's core area,
 1. Rajiv Gandhi Wildlife Sanctuary and
 2. Gundla Brahmeswaram Wildlife Sanctuary (GBM).
- Multipurpose reservoirs in the reserve - Srisailem and Nagarjunasagar.

Deepor Beel Wildlife Sanctuary

Environment Ministry has notified that the Deepor Beel Wildlife Sanctuary, Assam as an eco-sensitive zone.

- Deepor Beel is a permanent freshwater lake in a former channel of the Brahmaputra River, to the south of the main river.
- It is Assam's only [Ramsar site](#) besides being an Important Bird Area.
- It has for decades been threatened by a railway track, a garbage dump, and encroachment from human habitation and commercial units.
- The sanctuary's –guardian village is Chakardeo.
- To know about the impacts of notification of a region as an eco-sensitive zone, [click here](#).

India's Highest Herbal Park

At Mana, Uttarakhand, India's highest herbal park was inaugurated.

- The main aim of the herbal park is to **conserve medicinally and culturally important alpine species**, and to facilitate a study on the propagation of these species, as well as their ecology.
- Most of the species of herbal plants conserved in this park built by Uttarakhand government are,
 1. Found in high alpine areas in the Himalayan region,
 2. Included in the –red list of the IUCN, and
 3. Declared –endangered and threatened by State Biodiversity board.
- The park is categorised into 4 sections - Sections for –Ashtavarga species, Saussurea species, species associated with Badrinath (Lord Vishnu), and for assorted alpine species.
- [–Ashtavarga species consists of group of 8 Himalayan herbs.]
- The land for the project was provided by Mana Van panchayat under the Compensatory Afforestation Fund Act (CAMPA).

India Cooling Action Plan

- The 20-year India Cooling Action Plan (ICAP) was released by Ozone Cell of the Environment Ministry in 2019. It aims to bring down the refrigerant demand by 25 to 30% in the next 20 years.
- It aims to recognize –cooling and related areas as a thrust area of research under the National S&T Programme.
- It describes cooling as a -developmental need and seeks to address the rising demand in cooling, from buildings to transport to cold-chains, through sustainable actions.
- The plan estimates that the national cooling demand would grow 8 times in the next 20 years, which would result in a corresponding 5 to 8-fold rise in the demand for refrigerants that involve the use of HFCs.
- As part of the ICAP, the government has also announced targeted R&D efforts aimed at developing low-cost alternatives to HFCs.
- **Other objectives** - It will assess the cooling requirements across sectors and the associated refrigerant demand and energy use.
- The goals emerging from the suggested interventions stated in ICAP are,

Goals	Targets
Reduction of cooling demand across sectors	20% to 25 % by 2037-38
Reduction of refrigerant demand	25% to 30% by 2037-38
Reduction of cooling energy requirements	25% to 40% by 2037-38
Skilling and certifying 100,000 Refrigeration and AC servicing sector technicians, in synergy with Skill India Mission	2022-23

Smog Tower

Delhi will get its 1st smog tower in Connaught Place that aims to help combat air pollution at hotspots.

- The smog tower is expected to **clean the air** around a 1-km radius.
- It will purify 1,000 cubic metres of air per second, helping reduce PM 2.5 and PM 10 levels in the locality.
- The smog tower will take the polluted air from the top and emit the purified air near the ground through fans fitted on sides.
- It has around 40 wings that emit purified air at 10 m above the ground.
- A control room has been set up at the site to monitor the operations of the smog tower.
- Another 25-metre-tall smog tower is being built by the central government at Anand Vihar, Delhi.

National Policy on Bio-fuels 2018

The Ministry of New and Renewable Energy envisages the creation of a National Biomass Repository through its National Policy on Bio-Fuels 2018.

- This would be done by conducting appraisal of biomass across the Country.
- The policy is aimed at taking forward the indicative target of achieving 20% blending of biofuels with fossil-based fuels by 2030.
 - a. Target of 20% blending of ethanol in petrol and
 - b. Target of 5% blending of biodiesel in diesel.
- [The percentage of the same currently stands at around 2% for petrol and less than 0.1% for diesel.]
- It categorises biofuels as following to enable extension of appropriate financial and fiscal incentives under each category,
 - a. **Basic Biofuels** - First Generation (1G) bio-ethanol & biodiesel

- b. **Advanced Biofuels** - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc.
- The Policy expands the scope of raw material for ethanol production by allowing use of the following for ethanol production,
 - a. Sugar-containing materials like B grade molasses, sugarcane juice, sugar beet, sweet sorghum,
 - b. Starch-containing materials like corn, cassava,
 - c. Damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption.
- The Policy allows use of surplus food grains for production of ethanol for blending with the approval of National Biofuel Coordination Committee.
- One of the expected benefits is that the Used Cooking Oil can be used as potential feedstock for biodiesel and its use for making biodiesel will prevent diversion of used cooking oil in the food industry.

Tigers in the Mountains

- Uttarakhand government highlighted the expanse of the state's tiger map from Corbett National Park to Kedarnath Wildlife Sanctuary.
- **Range** - Between the terai and the mountains, the tiger range is from an elevation of 1,181 ft (360 m) to 12,073 ft (3680 m) - a testimony of Uttarakhand's success in tiger conservation.
- Because, tiger's usual range is less than 6,000 ft. That makes its presence above 12,000 ft rare. But tigers have shown up before a strategically placed motion-triggered camera at higher altitudes.
- Since 2016, multiple records of tigers above 10,000 feet have been recorded in India.
- **Causes for concern** - Records of high-altitude tigers getting somewhat routine is alarming, as it signifies that warming induced by climate change is making the higher mountains tolerable for tigers.
- But the fact that tigers are found roaming the snow indicates that their upward movement is not deterred by the cold.
- Like Siberian tigers do not actually live in Siberia (but in temperate broadleaf-mixed-pine and pure deciduous forests), it is unlikely that tigers spotted in the snow have settled down there.
- Their survival still depends on the forests below. There can be no trade-off between traditional tiger habitat and these new heights of feline interest.

Prevention of River Pollution

- Under **National Water Quality Monitoring Programme**, Central Pollution Control Board (CPCB) along with the PCBs/Committees in different States/UTs is monitoring water quality of water bodies.
- As per the latest CPCB report of September 2018, 351 polluted stretches were identified on 323 rivers.
- **Problems** - Rivers in the country are polluted mainly due to,
 1. Discharge of untreated sewage from cities/towns and industrial effluents in their respective catchments,
 2. Problems in operation and maintenance of sewage treatment plants, lack of dilution and other non-point sources of pollution,
 3. Rapid urbanization and industrialization.
- **Cleaning of rivers** is an ongoing process. It is the duty of States/UTs and local bodies to ensure treatment of sewage and industrial effluents to the prescribed norms before discharging into water bodies or land.
- National River Conservation Plan (explained below) provides financial and technical assistance for abatement of pollution in identified stretches of rivers, excluding River Ganga and its tributaries.
- The Central Government has notified General Discharge Standards and also industry specific effluent discharge standards under **Environment (Protection) Rules, 1986**.
- These standards should be complied by the industrial units, STPs and/or the CETPs for prevention and control of pollution in water bodies.

Net Zero Carbon Targets

- Net-zero or carbon-neutrality does not mean that a country would bring down its emissions to zero. That would be **gross-zero**, which means reaching a state where there are no emissions at all.
- So, net-zero is a state in which a country's emissions are compensated by absorption and removal of greenhouse gases from the atmosphere.
- One way by which carbon can be absorbed is by creating **carbon sinks**.
- Until recently, the South America's Amazon Rainforests (world's largest tropical forests), were carbon sinks. But eastern parts of the forests have started emitting CO₂ instead of absorbing them due to deforestation.
- But, it is possible for a country to have negative emissions, if the absorption and removal exceed the actual emissions. (e.g.): Bhutan.

Net-zero Targets of Countries

- In 2019, the US launched a bipartisan organisation called World War Zero to reach net-zero carbon emissions in the country by 2050.
- In 2020, China announced that it would become net-zero by 2060 and it would not allow its emissions to peak beyond what they are in 2030.
- The European Commission has asked all of its members to cut emissions by 55% below 1990 levels by 2030, through the EU's 'Fit for 55' plan.

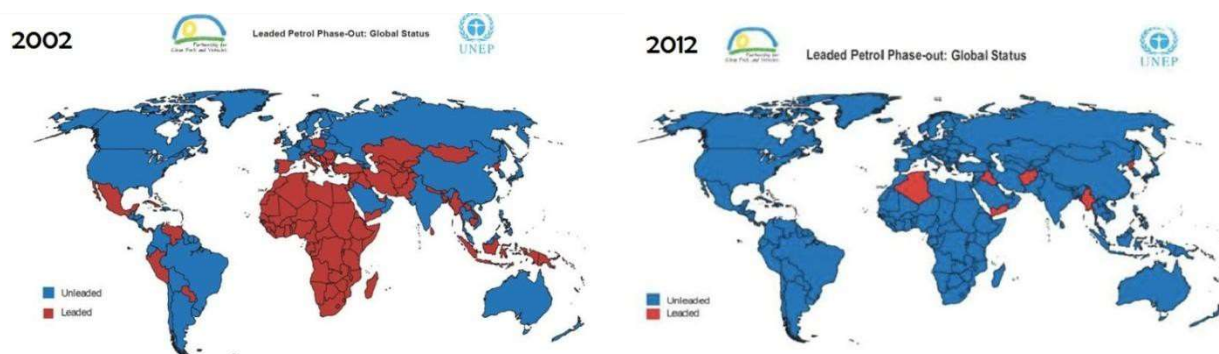
Leaded Petrol

According to UNEP, World has completely eradicated the use of Leaded Petrol.

- Globally, automotive fuel is completely lead-free now. Not a single fuel outlet sells leaded petrol anymore anywhere.
- Algeria was the last country to use the fuel.
- This feat is achieved after UNEP-led global Partnership for Clean Fuels and Vehicles (PCFV) began its campaign in 2002 to eliminate lead in petrol.
- Fumes from leaded petrol vehicles have been a significant source of lead exposure to humans.
- It affects emissions control systems of vehicles particularly catalytic converters.
- **India and Leaded Petrol** - It started its phase down in 1994 and completed in 2000.
- Initially, low-leaded petrol was introduced in Delhi, Mumbai, Calcutta and Chennai in 1994, followed by unleaded petrol in 1995.

Partnership for Clean Fuels and Vehicles

- It was setup at the World Summit on Sustainable Development, 2002. UNEP hosted the Secretariat.
- Its aim is to eliminate leaded petrol globally and provided support to many countries and regional initiatives.
- At the time, 117 countries world-wide were still using leaded petrol with 86 countries supported to phase out leaded petrol.
- In 2006, the first major success was achieved – Sub-Saharan Africa went unleaded.



River Pollution in Africa

A new report has found that some rivers in Africa are turning the color of ink, and fast fashion is behind it.

- The report claimed that the untreated or partially treated effluent from textile factories (blue or indigo in colour) is killing the African rivers.
- Trade agreements, tax incentives and cheap labour have spurred rapid growth of the industry, mainly in Tanzania, Ethiopia, Lesotho and Madagascar.
- The report flagged two major problems,
 1. Production of cotton and leather as inputs - that extensively use chemical, insecticides and fertiliser - pose significant water risks.
 2. Lack of transparency on who sources and manages these raw materials.
- In 2015 alone, the global textiles and clothing industry was responsible for the consumption of 79 billion cu.m. of water.
- Producing cotton burdens water resources and leads to salinisation, soil erosion and degradation.
- Other stages of production entail many water-polluting activities like,
 1. Unsafe management of solid waste and sludge,
 2. Unsafe handling of chemicals used,
 3. Shipping of products causing water pollution on the waterways,
 4. Release of microplastic in water,
 5. Fast-fashion, which makes most of our collection disposable.

July 2021 - Hottest Month Ever

The US National Oceanic and Atmospheric Administration "s (NOAA "s) National Centers for Environmental Information has released a report on global climate.

- This report has said that July 2021 was the hottest month on Earth since 1880.
- It says that the global land-only surface temperature for July 2021 was 1.40 degrees Celsius above the 20th-century average.
- The previous record was held by Julys in 2017 and 2020.
- The warmth across the global land surfaces was driven by higher than normal temperatures across much of the Northern Hemisphere land.
- In July 2021, Arctic sea ice extent was 18.8% below the 1981-2010 average levels.
 - NOAA said that 2021 will be in the list of the 10 warmest years on record.

Wildfires

A massive wildfire continues to burn on the northern tip of Greece's second-largest island called Evia, which is close to the mainland.

- Wildfires or forest fires (or bushfires in Australia) are unplanned fires that burn through natural areas such as forests, grasslands or prairies.
- They occur during hot and dry seasons, as dry leaves, shrubs, grass and deadwood are easily combustible and easily ignite.
 - Ignition can either happen naturally, such as through lightning strikes, or triggered accidentally or intentionally.
- Such fires typically come to an end when there is no more vegetation to burn or because of rain.
- **Impacts** - As the fires burn through vegetation or forests, smoke and carbon are released into the atmosphere.
- But the fires also release nutrients into the soil and are an important part of ecological succession, plant germination, and soil enhancement.

- **Factors** - The size of a wildfire depends on the amount of vegetation available and also the strength and direction of the wind.
- Some of the other factors that influence the wildfires are weather events such as frequent heatwaves, extreme rainfalls and rising sea levels.
- Similar to Wildfires, [click here](#) to know about Zombie Fires.

Emission Control Measures By Thermal Plants

- In 2020, the Government of India made rules for use of coal by thermal power plants, without stipulations of ash content or distance.
- **Technology Solution for emission norms** - Compliance of specified emission norms for Particulate Matter, as per the notifications of Central Pollution Control Board, issued from time to time.
- In case of washeries, Middling and rejects to be utilized in Fluidised Bed Combustion (FBC) technology based thermal power plants.
- **Ash Ponds** - Thermal plants must comply with the Fly Ash notification, without being entitled to extra power generation capacity of fly ash pond on ground of switching from washed to unwashed coal.
- Segregation of ash may be done at the Electro-Static Precipitator stage to ensure maximum utilization of fly ash.
- **Coal Transportation** may be undertaken by Railway wagon (covered by tarpaulin or other means) or covered conveyer beyond the mine area.
- However, road transportation may be undertaken in covered trucks, if Rail transport/conveyer infrastructure is not available.
- With advancement in pollution control technologies, thermal plants are better equipped to capture fly-ash generated in combustion process and unwashed coal can be used more efficiently and economically.

Fluidised Bed Combustion Technology

- It is a combustion technology used to **burn solid fuels** (types of coal, coal waste and woody biomass) at high efficiency and without the necessity for expensive fuel preparation.
- Fuel particles are suspended in a hot, bubbling fluidity bed of ash and other particulate materials (sand, limestone etc).
- Through this suspension, jets of air are blown to provide the oxygen required for combustion or gasification.
- The resultant fast and intimate mixing of gas and solids promotes rapid heat transfer and chemical reactions within the bed.
- For any given thermal duty, FBCs are smaller than the conventional furnace, so they offer advantages in terms of cost and flexibility.
- **Reduced Emissions** - FBC reduces the amount of SO_x, NO_x emitted.

Other Options

Various technology options for regulating the emission standards in coal-fired power plants include,

- Flue Gas Desulfurization System,
- Spray Dryer Absorber (SDA),
- Circulating Dry Scrubber (CDS),
- Limestone-based Wet FGD,
- Selective Non Catalytic Reduction,
- Electrostatic Precipitator,
- Bag House Dust Collector.

Eco Sensitive Zone

Government of India has recognised the reserve forest area on the fringes of Nagarjunasagar Srisailem Tiger Reserve (NSTR) as an Eco-Sensitive Zone (ESZs).

- Also known as Ecologically Fragile Areas (EFAs), ESZs are areas notified around the Protected Areas, National Parks and Wildlife Sanctuaries by the MoEFCC under the Environment (Protection) Act, 1986.
 - But the word –Eco-Sensitive Zones was not mentioned in this Act.
- Coverage** - An ESZ could go up to 10 kms around a protected area as provided in the Wildlife Conservation Strategy, 2002.
- In the case of where sensitive corridors, connectivity and ecologically important patches are crucial for landscape linkage are beyond 10 km width, they should be included in the ESZs.
- Permitted activities** - Ongoing agricultural or horticultural practices, rainwater harvesting, organic farming, use of renewable energy sources, adoption of green technology for all activities.
- Regulated activities** - Felling of trees, establishment of hotels and resorts, commercial use of natural water, erection of electrical cables, drastic change of agriculture system, widening of roads.
- Prohibited activities** - Commercial mining, saw mills, industries causing pollution, establishment of major hydroelectric projects (HEP).
- It also prohibits commercial use of wood, Tourism activities, discharge of effluents or any solid waste or production of hazardous substances.
- Benefits** - ESZs are created to prevent ecological damage caused due to developmental activities around the Protected Areas.
- They act as a transition zone from areas of high protection to that of lesser protection.

SPECIES IN NEWS

Swinhoe's Softshell Turtle

It is the world's most endangered turtle that is fighting a chance to survive.

- Also known as giant Yangtze soft shell turtle, it is the largest freshwater turtle in the world. [Freshwater turtles are more threatened than marine ones.]
- It is known as the Hoan Kiem turtle in Vietnam, as it is believed to have emerged from the Hoan Kiem Lake or Lake of the Returned Sword.
- They are found in the wetlands and large lakes of China and Vietnam.
- Ecological role** - This species is important to the seafloor biosystem, where they contribute by enriching soil nutrients and facilitating seed dispersion.
- Threats** - Habitat destruction, water pollution, riverbed abrasion, overexploitation for food and illegal trade.
- Conservation**
 - IUCN Status - Critically Endangered
 - CITES - Appendix II

In soft shell turtles, the top or back is fleshy.

In hard shell turtles, the top or back is made up of bone and covered by the skin or epidermis.

The world's largest turtle though, is neither hard shell nor soft, but somewhere in the middle. It is called the Leatherback.

Jalakanyaka

A new marine algae species with an umbrella-like cap, which has been named *Jalakanyaka*, has been discovered on Andaman & Nicobar Islands.

- The new algae species has been named *Acetabularia jalakanyakae*, after the Sanskrit word *Jalakanyaka* meaning the 'goddess of oceans' or 'mermaid'.
- This species is the 1st of the genus *Acetabularia* to be discovered in India.

It is also the first of its kind on the Island.

- Algal diversity is one of the highest in the Andaman & Nicobar Islands.
- **Features** - This delicate species has an intricate umbrella-like design.
- The whole plant is made up of just one cell with only one nucleus.
- Furthermore, a structure called a rhizoid is formed towards the end of the plant cell containing its nucleus.
- This allows the algae to attach to the rocks underneath the shallow tropical ocean, where it grows.
- Another feature of *Acetabularia* is their **regenerative potential**. For example, if the top part of the algae is cut off, it can regrow the structure.
- **Threats** - Rising seawater temperature decreases oxygen concentration in water, dangerously affecting all organisms that depend on oxygen to live, including this species.

Algae

- Algae is a group of predominantly aquatic, photosynthetic, and nucleus-bearing organisms that lack the true roots, stems, leaves, and specialized multi-cellular reproductive structures of plants.
- They range in size from microscopic *Micromonas* species to giant kelps that reach 60 metres in length.
- **Oxygen producers** - Algae produce oxygen through photosynthesis. They turn CO₂ into biomass and release oxygen.
- Marine algae produce almost two-third of oxygen in the air we breathe.
- **Food producers** - Algae convert atmospheric CO₂ into food for the marine ecosystem. They are at the base of the food chain.
- Also, when the algae die, they are consumed by decomposers (mostly fungi and bacteria).
- **Petroleum fossils** - When Algae die, they sink to the ocean floor.
- Over the years, this layer turns into what we know as petroleum.
- Algae is not only important for the environment but for studies and research too.
- But, Algae that has industrial, medical, and survival importance is being affected by Climate change factors like rise in temperature decreases oxygen levels in the water, ocean acidification, etc

Minervarya Pentali

It is a new frog species that was discovered from the globally recognised biodiversity hotspot, the Western Ghats.

- This new species is **endemic** to the southern Western Ghats - Kerala and Tamil Nadu.
- It is also among the smallest known *Minervarya* frogs.
- It is a species of frog in the fork-tongued frog family, *Dicroglossidae*.

Amolops adicola

A new species of cascade frog discovered from Adi hills of Arunachal Pradesh has been named after the Adi hills, the abode of Adi tribes.

- The new species belongs to the genus *Amolops*, which includes medium- to large-sized Cascade frogs from north-east India.
- The species draws its nomenclature from Adi tribes, an indigenous group of people from the Himalayan regions of Arunachal Pradesh.
- This species dwells particularly during the post-monsoon season.
- Another Cascade frog species of the *Amolops* genus previously discovered from the Sikkim Himalayas is *Amolops monticola*.

Cascade Frogs

- They are named so because of their preference for small waterfalls or cascades in flowing hill streams.

- For this, these frogs have developed certain morphological features like expanded digit tips and extensive foot webbing that makes them adapt to strong water currents.
- These frogs belong to Amolops genus. Amolops is one of the largest groups of family Ranidae or ranid frogs.
- Many frogs in the north-eastern India are reported to occur widely but, have relatively small geographical ranges and require special attention for conservation before they go extinct forever.

Slender Loris

Some people suggest that the Tamil Nadu government must declare the Kadavur Reserve Forest a sanctuary for the slender loris.

- Slender loris (*Loris tardigradus*) is a shy, secretive and reclusive species of primate, and has nocturnal habits.
- **Habit** - They are usually solitary but sometimes found in pairs.
- It usually travels from the canopy of one tree to another. At times, it comes down to the bushes at the ground level to feed.
- It sleeps by day in the foliage or in a hole or crevice. It comes out at dusk in search of prey.
- **Location** - It is native to Southern India and Sri Lanka.
- It is commonly found in the tropical scrubs, deciduous forests and scrubs as well as the dense hedgerow plantations bordering farmlands.
- **Food** - It eats lantana berries, insects, lizards, small birds, tree frogs, tender leaves and buds.
- It plays a key role in controlling agricultural crop pests in organic farms.
- **Threats** - Habitat loss, electrocution of live wires, road accidents and illegal smuggling.
- **Conservation**
 1. IUCN - Endangered
 2. CITES - Appendix II
 3. Wild Life Protection Act, 1972 - Schedule I to provide the highest level of legal protection

Kadavur Reserve Forest

- It is located in Tamil Nadu. It consists of hills and dense dry areas.
- Indian bison, spotted deer, mouse deer, slender loris, jackal, mongoose, black naped hare, wild boar, porcupine, monitor lizard, pangolin, monkeys, pythons, etc are found in the forests.
- Many parts of this forest have been afforested under the Tamil Nadu Afforestation Project (TAP) program aided by Japanese government.

19. SCIENCE AND TECHNOLOGY

SPACE

Merging of 3 Super-massive Black Holes

Indian researchers have discovered 3 supermassive black holes from 3 galaxies merging together to form a triple active galactic nucleus.

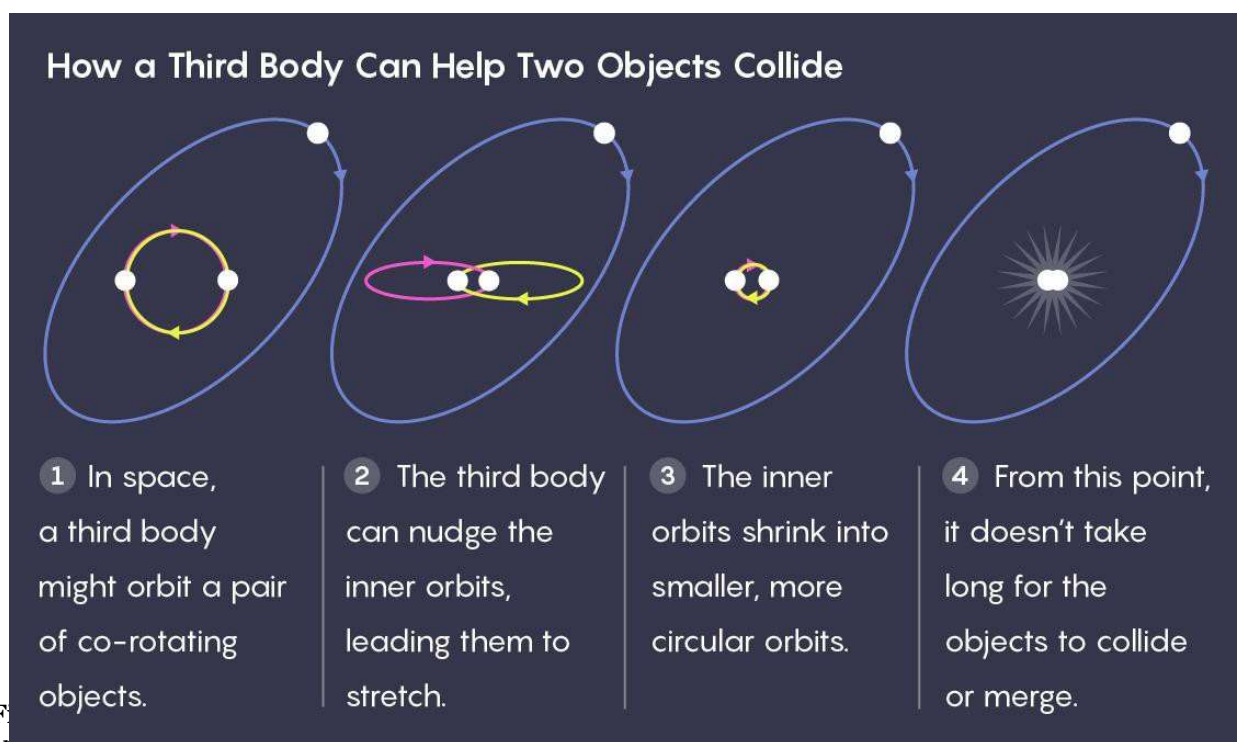
—A galactic nucleus is a compact region at the center of a newly discovered galaxy that has a much-higher-than-normal luminosity.!

- This is a rare occurrence in our nearby Universe.
- These small merging groups are ideal to study and detect multiple accreting supermassive blackholes.
- While studying a known interacting galaxy pair (NGC7733 & NGC7734), the researchers detected unusual emissions from the centre of NGC7734 and a large, bright clump along the northern arm of NGC7733.

- Each of the galaxies hosts an active supermassive black hole in their nucleus and hence forms a very rare triple active galactic nuclei (AGN) system.

Merging Process

- Galaxy interactions happen when galaxies move close by each other and exert tremendous gravitational forces on each other.
- During such galaxy interactions, the respective supermassive black holes can get near each other.
- The dual black holes start consuming gas from their surroundings and become dual AGN.
- If two galaxies collide, their black hole will also come closer by transferring the kinetic energy to the surrounding gas.
- The distance between the blackholes decreases with time until the separation is around a parsec (3.26 light-years).



- For two black holes to merge, they are unable to lose any further kinetic energy in order to get even closer and merge.
- This problem can be solved with the presence of a third black hole.
- The dual merging blackholes can transfer their energy to the third blackhole and merge with each other.
- Hence the impossible event of merging of 2 black holes is made probable with an addition of a third into the equation.
- Many AGN pairs have been detected in the past, but triple AGN are extremely rare.

Detection of Super-massive Black Holes

- Supermassive black holes are difficult to detect as they don't emit light.
- But they can reveal their presence by interacting with their surroundings.
- When the dust and gas from the surroundings fall onto a supermassive black hole, some of the mass is swallowed by the black hole.
- But some of the mass is converted into energy and emitted as electromagnetic radiation that makes the black hole appear luminous.
- They are called active galactic nuclei (AGN) and release huge amounts of ionized particles and energy into the galaxy and its environment.

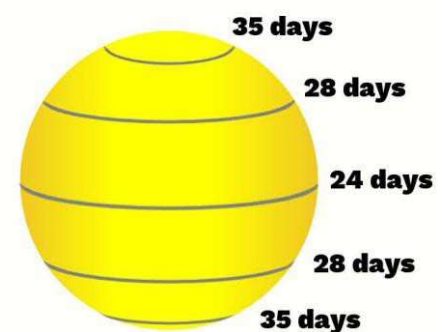
- Both of these ultimately contribute to the growth of the medium around the galaxy and ultimately the evolution of the galaxy itself.

Near-surface Shear Layer

- Astronomers from Aryabhata Research Institute of Observational Sciences (ARIES), and IISc, Bangalore, have given the explanation of the existence of a near-surface shear layer (NSSL) in the Sun.
- NSSL is a layer in the Sun, where the internal rotation profile of the Sun changes sharply. This layer exists very close to the solar surface, where there is an outward decrease in angular velocity.
- In this study, **Thermal wind balance equation** was used.
- This equation explains how the slight difference in temperature between solar poles and equator, called thermal wind term, is balanced by the centrifugal force appearing due to solar differential rotation.
- It was thought that this condition is true only in the interior of the Sun, and it does not hold near the solar surface.
- In the study work, this belief actually holds near the surface as well.
- If this condition is true near the solar surface, it can explain the existence of NSSL, which is inferred in helioseismology (technique of using sound waves to peek inside the Sun) based observation.
- **Significance** - Understanding NSSL is crucial for the study of several solar phenomena like sunspot formation, solar cycle, and it will also help in understanding such phenomena in other stars.

Solar Differential Rotation

- This phenomenon is caused because different parts of the Sun rotate at different speeds.
- The Sun's rotation period varies with latitude on the Sun since it is made of gas. The Sun's equator spins faster than the poles.
 - a) Equatorial regions (latitude = 0 degrees) rotate in about 25.6 days.
 - b) Regions at 60 degrees latitude rotate in about 30.9 days.
 - c) Polar Regions rotate in about 36 days.
- The Sun rotates around an axis that is roughly perpendicular to the plane of the ecliptic; the Sun's rotational axis is tilted by 7.25° from perpendicular to the ecliptic.
- It rotates in the counter-clockwise direction, the same direction that the planets rotate.








Global Navigation Satellite System

- This general term describes any **satellite constellation** that provides positioning, navigation, and timing (PNT) services on global or regional basis.
- GNSS is a network of satellites broadcasting timing and orbital information used for navigation and positioning measurements.
 1. Global Navigation Satellite Systems - GPS, GLONASS, BeiDou & Galileo
 2. Regional Navigation Satellite Systems - NavIC and QZSS

Quasi-Zenith Satellite System

- It is a regional GNSS owned by Japan and operated by QZS System Service Inc. (QSS).
- QZSS complements GPS to improve coverage in East Asia and Oceania.
- Japan plans to have an operational constellation of 4 satellites by 2018 and expand it to 7 satellites for autonomous capability by 2023.

IRNSS, India's answer to Global Positioning System, will cover a radius of 1,500km with India at the centre. Here is where India stands in a comity of space-faring nations

 GPS Country US No. of Satellites 32 Coverage Global First satellite launch 1978 Lifetime of each satellite 10 years Precision 5m	 GALILEO Region European Union No. of satellites 24 (10 in orbit now) First launch 2011 Area of coverage Global Lifetime of each satellite 12 years Precision 1m for public and 1cm for military	No. of satellites 35 (20 now in orbit) First launch October 2000 Area of coverage global Lifetime of each satellite 12 years Precision 10m for public and 10cm for military
 GLONASS Country Russia No. of satellites 24 Coverage Global First satellite launch October 1982 Lifetime of each satellite 10 years Precision 5m to 10m	 BEIDOU Country China Has two separate satellite constellations- limited test system and full-scale global navigation system	 IRNSS Country India No. of satellites 7(5 in orbit) Area of coverage Radius of 1500km First satellite launch 2013 Lifetime of each satellite 12 years Precision 20m for civilian, 10m for military

Eutelsat Quantum Satellite

- This is the world's first commercial fully reprogrammable satellite launched by the European Space Agency (ESA) from French Guiana.
- Eutelsat Quantum, developed under an ESA partnership project with satellite operator Eutelsat and prime manufacturer Airbus, is the world's first commercial fully flexible software-defined satellite.
- Eutelsat Quantum weighs 3.5 tonnes and consists of eight communication beams. Each of the beams can be modified to make changes to the coverage area and its telecommunications signal.
- **Benefits** - As the changes can be done in minutes, this satellite can be used in providing mobile coverage in moving objects successfully.
- Satellite can detect and characterise any rogue emission, enabling it to respond dynamically to accidental interference or intentional jamming.
- The Eutelsat Quantum will be covering the geographical area from West Africa to Asia in a 15 years period of time.

Reprogrammable Satellite

- These satellites allow the user to change the communications as per need, in real time.
- Even while orbiting in a fixed position at 35,000 kms above Earth, the satellite can be reprogrammed.
- Because it can be reprogrammed in orbit, it can respond to changing demands for data transmission and secure communications during its 15-year lifetime.

Boeing's Starliner

- The launch of Boeing's uncrewed Starliner Orbital Flight Test-2 (OFT-2) or the Crew Space Transportation-100 (CST-100) has been postponed.
- This spacecraft is part of an uncrewed test flight to the [International Space Station](#). The mission is part of NASA's Commercial Crew Program.
- **Purpose** - Starliner has been designed to accommodate seven passengers or a mix of crew and cargo for missions to low-Earth orbit.
- It has an innovative, weldless structure and is reusable up to 10 times with a 6-month turnaround time.
- It features wireless internet and tablet technology for crew interfaces.

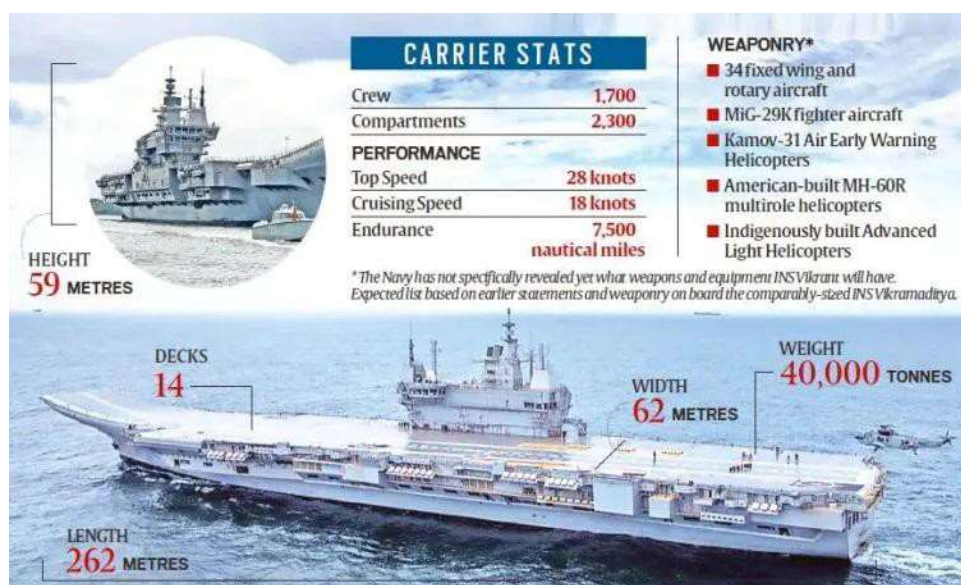
Sampling Process of Perseverance Rover

- According to data sent to Earth by the NASA's Perseverance Rover, no rock samples were collected during the first attempt.
- Perseverance Rover will spend one Mars year (two years on Earth) on the planet during which time it will explore the landing site region i.e. Jezero Crater and collect its first rock samples.
 - The rover is carrying [MOXIE](#) and [Ingenuity](#).
- **Sampling process** - The rover carries 43 titanium sample tubes and is supposed to collect samples (rock and regolith) from the Jezero Crater.
- Perseverance's sampling process is autonomous - its sampling and caching system uses a hollow coring bit and percussive drill that is fixed at the end of its 7-foot-long robotic arm.
- To know more about the Perseverance Rover, [click here](#).

DEFENCE

IAC-1 Vikrant

- Indigenous Aircraft Carrier (IAC) 'Vikrant' is the 1st aircraft carrier designed and built in India. It is designed by Indian Navy's Directorate of Naval Design.



- It is an example of 'Atma Nirbhar Bharat' with more than 76% indigenous content.
- The ship has,
 1. A very high degree of automation for machinery operation, ship navigation and survivability,
 2. Propulsion and Power Generation equipment/ systems,
 3. An incomparable military instrument with its ability to project Air Power over long distances.

HEALTH

Gamma Irradiation Technology

- Presently, there are 26 Gamma Radiation Processing Plants operational in India in private, semi government and government sector.
- Gamma Irradiation technology is used for **food preservation/shelf life extension** by applying pre-determined radiation doses, as it
 1. Inhibits sprouting in bulbs and tubers,
 2. Insect disinfestation of cereals, pulses and grains,

3. Microbial decontamination (hygienization) of dry spices etc.

- Setting of food irradiation facilities in the PPP mode mitigates the huge quantum of post-harvest and storage losses of agricultural produce and food that results in national saving.

Food irradiation

- It is the process of exposing food and food packaging to ionizing radiation, such as from gamma rays, x-rays, or electron beams, without direct contact to the food product.
- When ionizing radiation passes through a food product, some energy is absorbed by some chemical bonds.
- Some bonds rupture and produce free radicals which are highly reactive and unstable. They instantaneously rejoin with neighbouring compounds and the results are called radiolytic compounds.
- Food irradiation is used to improve food safety by
 1. Extending product shelf life (preservation),
 2. Reducing the risk of food-borne illness,
 3. Delaying or eliminating sprouting or ripening,
 4. Sterilization of foods, and
- It is used as a means of controlling insects and invasive pests.

Fortification of Rice

Emphasising that malnutrition is a hurdle in the development of women and children, Prime Minister announced fortification of rice distributed under various government schemes by 2024.

- This announcement is important as the government distributes rice under various schemes - TPDS, MDM and ICDS - covered under the National Food Security Act, 2013.
- Fortification is defined by FSSAI as deliberately increasing the content of essential micronutrients in a food so as to improve the nutritional quality of food and to provide public health benefit with minimal risk to health.

Mission Poshan 2.0

- It was announced the Union Budget 2021-2022 to strengthen nutritional content, delivery, outreach, and outcome.
- It was launched by merging the Supplementary Nutrition Programme and the Poshan Abhiyan.

- [Food Safety and Standards Authority of India (FSSAI) sets standards for food items in the country.]
- According to the FSSAI norms, 1-kg fortified rice shall contain iron (28mg-42.5mg), folic acid (75-125 mg) and Vitamin B-12 (0.75-1.25 mg).
- In addition, rice may also be fortified with micronutrients, singly or in combination, with zinc, and Vitamins A, B1, B2, B3 and B6.
- India accounts for over 1/5th of the world's rice production. It is the largest consumer of rice, with a per capita rice consumption of 6.8 kg per month.

Fortification of Rice and its Distribution Under PDS

- Ministry of Consumer Affairs had launched a pilot scheme on –Fortification of Rice and its Distribution under Public Distribution System (PDS) for a period of 3 years beginning 2019-20.
- This centrally sponsored scheme focuses on 15 districts in 15 states - AP, Kerala, Karnataka, Maharashtra, Odisha, Gujarat, UP, Assam, TN, Telangana, Punjab, Chhattisgarh, Jharkhand, Uttarakhand and MP.
- Under the scheme, the blending of rice is done at the milling stage.
- The Scheme is funded by the Government of India in the ratio of,
 - a. 90:10 in respect of North Eastern, hilly and island states and
 - b. 75:25 in respect of the rest of the states and UTs.

Fourth Sero Survey

- This survey conducted across India found that on an average 67.6% of the population has been infected i.e. **seroprevalence**. Over 25% of people have been vaccinated with one dose.
- **Not a representative survey** - Scientists from ICMR have clarified that this survey is not representative of the whole country.
- They have called for state level, preferably district level, surveys across the country using standardised methodology. But conducting the district level survey is not feasible during a pandemic period.
- **Anti-bodies Unknown** - It is not known for how long the antibodies last either after infection or vaccination (i.e., induced immunity).
- Tests employed in the surveys only identify antibodies to two viral proteins (nucleocapsid and spike) but do not measure the ability of those antibodies to neutralise the virus.
- However, some protection is likely from the non-Spike-directed immune defences, if not the spike protein-directed immune defences.
- Some of those who tested positive for antibodies, especially children, may have cross-reactive antibodies generated by other corona viruses.
- We may also have 'false negatives' of persons in whom antibody levels may have fallen some months after infection but still may have immunity from memory T cells and other forms of cellular immunity.
- Studies have shown a diminished neutralisation efficacy of antibodies produced by previous infections against the Delta variant.
- So, definitive conclusions about individual or herd immunity should not be drawn from antibody surveys.
- By adopting strong containment measures everywhere, the susceptible persons can be protected against current and new variants.

Waning of Antibodies

- People who were infected early during the pandemic would have a greater chance of testing negative during surveys due to the waning of antibodies over time.
- The time taken for such disappearance varies between 3 and 6 months.
- There would be a great deal of individual variation, based on
 1. Dose of viral exposure,
 2. Severity of the infection,
 3. Nature of the variant,
 4. Age of the infected person,
 5. Associated health conditions and
- Use of steroids or other immunosuppressive drugs for treatment during the illness.

Doctor to Population Ratio

The World Health Organisation (WHO) has recommended 1:1000 as the doctor to population ratio.

- Currently, the doctor-population ratio in India is 1:1456. But, India is on the path to achieve the WHO-recommended ratio by 2024, and is increasing the number of beds from 11 lakh to 22 lakhs.
- [Ayushman Bharat Yojna](#) and [Jan Arogya Yojna](#) are the programmes that focus on providing all kinds of health facilities to people.

Soft Robotic Actuators

Indian scientists have developed soft robotic actuators with enhanced photomechanical capacity, using highly Porous Carbon Nanoparticles (PCN) from waste onion peels.

- Soft robotic Actuators consisting of rubber-like polymer with embedded nanomaterials can act as efficient traps for the illuminating low-power near-infrared (NIR) light.

- [Actuation is the state or condition of being impelled or moved to action]
- Actuators can convert the control signal (source of energy) into mechanical motion with bioengineering applications.
- Generation of predesigned motion is facilitated by their flexibility, affordability, and easy customization.
- High thermal conductivity of the nanoforms results in rapid distribution of the heat generated locally by thermal and photo-thermal stimuli.
- Specific surface area of PCNs were efficient traps for the illuminating NIR light resulting in the film comprising PCNs and PDMS achieving large magnitude (multi-mm) actuation with sub-second responses.
- With an additional ultrathin (30 nm) gold layer, the magnitude of actuation could be more than doubled, and bidirectional photo-controlled face-sensitive movement realized.
- **Applications** - Actuators can be used for bio-medical applications (drug delivery, wearable and assistive devices, prostheses and artificial organs), military, and remote space operations.

Blood Clotting - Root Cause of Long Covid

A new study has reported evidence that patients with long Covid syndrome continue to have higher measures of blood clotting.

- This evidence helps to explain their persistent symptoms, such as breathlessness, reduced fitness and fatigue.
- In long Covid syndrome, symptoms can last weeks to months after the initial infection has been resolved.
- Even though markers of inflammation had all returned to normal levels, increased clotting potential was still present in long COVID patients who required hospitalisation.
- But, they also found that even those who were able to manage their illness at home still had persistent clotting.
- **Significance** - Understanding the root cause of a disease (clotting) is the first step towards developing effective treatments.

Wilful Control of Dopamine

A new study reveals that impulses of dopamine chemical can be wilfully controlled.

- **Dopamine** is the neurological messenger or neurotransmitter that carries signals between brain cells.
- It has been popularly described as the "feel good" chemical of the brain related to reward and pleasure.
- It is involved in multiple aspects of cognitive processing - unique human ability to think and plan.
- Previously, dopamine was thought to occur only when presented with pleasurable or reward-based expectations.
- In the study, the mice learned to anticipate and wilfully act upon a portion of the dopamine.
- Mice learned to reliably elicit dopamine impulses prior to receiving a reward. These effects reversed when the reward was removed.

Junk DNA

A Study has identified the NTR2-1 DNA region (Junk DNA) that appears to drive the activity of the telomerase gene, which prevents aging in certain types of cells.

- Knowing how the telomerase gene is regulated and activated and why it is only active in certain cell types could be the key to understanding how humans age and how to stop the spread of cancer.
- The study describes that one of the 'junk DNA' units enhances the activity of the telomerase gene.
- About 50% of our genome has repetitive DNA that doesn't code for protein. These are called 'junk DNA' or dark matters of genome.
- Their finding is based on a series of experiments that found that deleting the DNA sequence from cancer cells caused telomeres to shorten, cells to age, and tumors to stop growing.
- The length of the sequence ranged from as short as 53 repeats or copies of the DNA to as long as 160 repeats.

- The study actually shows that the telomerase gene is more active in people with a longer sequence.
- But, having a shorter sequence doesn't necessarily mean shorter lifespan.
- It means the telomerase gene is less active and your telomere length may be shorter, which could make you less likely to develop cancer.
- These findings tell that this VNTR2-1 sequence contributes to the genetic diversity of how we age and how we get cancer.

Telomerase Gene

- This gene controls the activity of the telomerase enzyme, which helps produce telomeres, the caps at the end of each strand of DNA that protect the chromosomes within our cells.
- In normal cells, the length of telomeres gets a little bit shorter every time cells duplicate their DNA before they divide.
- When telomeres get too short, cells can no longer reproduce, causing them to age and die.
- However, in certain cell types - reproductive cells and cancer cells - the activity of the telomerase gene ensures that telomeres are reset to the same length when DNA is copied.
- This is what restarts the aging clock in new offspring but is also the reason why cancer cells can continue to multiply and form tumors.

Covid-19 to Become Endemic

The WHO Chief Scientist said that Covid-19 may be entering a stage where it will become endemic.

- This means that some people will get infected but the levels at which it will circulate will be low to moderate, depending upon the natural immunity and vaccine coverage in particular areas.
- But there are supply-side constraints for vaccine supplies are not adequate for the world's population and even if they were, some people are hesitant to get vaccinated.
- When epidemics become endemic, they become -increasingly tolerated and the responsibility of

Endemic refers to the constant presence and/or usual prevalence of a disease or infectious agent in a population within a geographic area.

Epidemic refers to a scenario when the number of cases of the disease increases, often suddenly, which means the cases are more than the expected levels.

protecting against it shifts from the government to the individual.

- The number of cases of a disease that are considered -constant would be different for different areas and would also depend on the particular geographical area's population.
- A modelling study said that in a few years, SARS-CoV-2 may be no more virulent than the common cold, much like other benign human coronaviruses that are currently circulating in the population and do not cause severe illness.
- It is not in the interest of a pathogen such as SARS-CoV-2 to become so severe that it kills all its hosts.
- In other words, the virus needs a host to survive, in the present case, it requires a human host to sustain its own survival, therefore as more people get infected or get vaccinated, the virus should become less life threatening, but it will still keep infecting people.

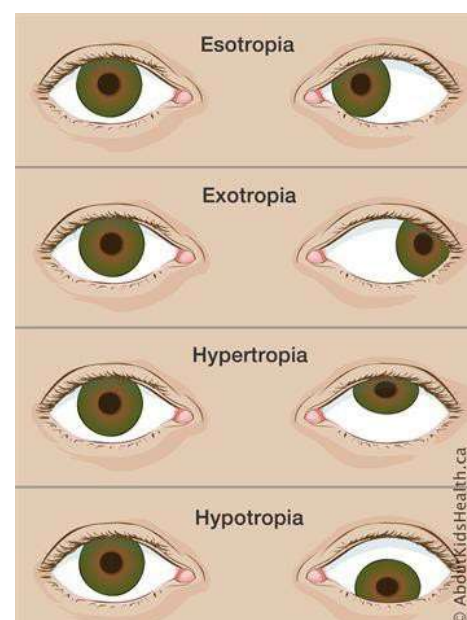
Esotropia

There is a five-fold increase in children with acute onset of esotropia.

- When an eye crosses inward, it is termed esotropia (-Esol means to turn inward toward the nose.)

"Intermittent crossing of an infant's eyes under about 4 to 5 months is normal. However, constant crossing of the eyes may be a concern."

- Esotropia is a type of strabismus. It can occur in just one eye or alternate between both eyes.



- It is rare for both eyes to cross in at the same time.
- Three forms of esotropia - Congenital or infantile esotropia, Acquired strabismus and Microstrabismus.

Types of strabismus (Based on the positions of the eye)

- Hypertropia is when the eye turns upwards
- Hypotropia is when the eye turns downwards
- Esotropia is when the eye turns inwards
- Exotropia is when the eye turns outwards
- Cyclotropia refers to the rotation of one eye around its visual axis.
 - Anisolated form of strabismus (i.e., one that does not occur in combination with paralytic strabismus),
 - This disorder is extremely rare.

OTHERS

Using Magnets to Produce Hydrogen

- Indian researchers have come up with a new hydrogen manufacture route that involves electrolysis of water to produce hydrogen (H₂) in the presence of an external magnetic field i.e. **magneto-electrocatalysis**.
- In this method, the same existing system that produces 1 ml of H₂ gas require 19% lower energy to produce 3 ml of hydrogen in the same time.
- This is achieved by synergistically coupling the electric and magnetic fields at the catalytic site.
- The electrocatalytic materials - cobalt-oxide nanocubes - are dispersed over hard-carbon based nanostructured carbon florets.
 - This material was developed with the support of the Department of Science & Technology's Material for Energy Storage program.
- **Advantages** - This route forms a system that doesn't require the constant presence of the external magnetic field and is able to sustain the magnetisation for prolonged time periods.
- The enhancements achieved are 650% increase in current density, 19% lowering of energy required and a 3-fold increase in volumetric hydrogen production rate.
- This route can be directly adopted in existing electrolyzers with external magnets without any change in design or mode of operation.
- [Electrolyzers use electricity to break water into hydrogen and oxygen.]
- One-time exposure of magnetic field for 10 minutes is enough to achieve the high rate of hydrogen production for over 45 minutes.

Nuclear Fusion

An experiment carried out in National Ignition Facility (California) has made a breakthrough in nuclear fusion research.

- **Nuclear fusion** is defined as the combining of many small nuclei into a large nucleus with the subsequent release of huge amounts of energy.
- It powers our sun and harnessing this fusion energy could provide an unlimited amount of renewable energy.
- [Base load energy refers to the minimum amount of electric power needed to be supplied to the electrical grid at any given time.]
- Nuclear fusion energy is a good choice as the base load energy in the future as it has many advantages.
- Advantages - Inexhaustibility of resources, inherent safety, no long-lived radioactive wastes, and almost no CO₂ emissions.
- In the experiment, lasers were used to heat a small fuel pellets, having deuterium and tritium, in the **inertial confinement fusion** process.

- This pressurised the fuel pellets at conditions similar to that at the centre of the Sun. This triggered the fusion reactions.
- These reactions released alpha particles (positively charged), which in turn heated the surrounding plasma.
- [At high temperatures, electrons are ripped from atom's nuclei and become plasma or the 4th state of matter or an ionised state of matter.]
- Heated plasma released alpha particles and a self-sustaining reaction called ignition took place. Ignition amplifies the energy output.
- **Significance** - This could help provide clean energy for the future.
- Reproducing the conditions at the centre of the Sun will help studying the states of matter we were unable to create in the lab before.

Viscose

- It is a **semi-synthetic material** or manufactured fiber used in clothes, upholstery and other bedding materials.
- It's one of the three types of **rayon** - modal, lyocell, and viscose.
- It is made from natural materials like wood pulp, which is treated and spun into yarns to make fabric.
- Viscose was manufactured as an affordable alternative to natural silk, hence known as **artificial silk**.
- In India, it is largely used to make apparel for women and children.
- Viscose products are seen as easy to maintain too and viscose consumption in India has witnessed 11% CAGR for the last 5 to 6 years.

20. INDEX AND REPORTS

Global Hunger Index (GHI)

India's ranking in the GHI has improved consistently over the years.

- GHI is an annual Report brought out by **Concern Worldwide** and **Welthungerhilfe**.
- Four indicators of GHI are,

Indicator	Definition	Calculation	Indicator Reflects
Under nourishment	People whose caloric intake is insufficient	Share of the population that is under nourished	Inadequate food availability
Child Wasting	People who have low weight for their height	Share of the children under the age of 5 who are wasted	Acute under nutrition
Child Stunting	People who have low height for their age	Share of children under the age of 5 who are stunted	Chronic under nutrition
Child Mortality	Mortality rate of children	Mortality rate of children under the age of 5	Both inadequate nutrition and unhealthy environment

- **Scoring** - Based on the values of the four indicators, the GHI determines hunger on a 100-point scale where 0 is the best possible score (no hunger) and 100 is the worst.

- A final score is calculated after giving 33.33% weight each to components 1 and 4, and giving 16.66% weight each to components 2 and 3.
- Each country's GHI score is classified by severity, from low to extremely alarming.

IPCC's Assessment Reports

- IPCC's Assessment Reports are the periodic status check, which is the most widely accepted scientific view of the state of Earth's climate.
- The five previous assessment reports that have come out since the IPCC was established in 1988 have formed the basis of international climate change negotiations, and the actions taken by the governments.
- These reports have been extremely influential in directing the dialogue and action on climate change.
 - a. First Assessment Report - Led to the setting up of the UNFCCC.
 - b. Second Assessment Report - Basis for 1997 Kyoto Protocol that ran till last year.
 - c. Fifth Assessment Report - **Guided the Paris Agreement**, which replaced the Kyoto Protocol from this year.

PREVIOUS IPCC ASSESSMENT REPORTS: HIGHLIGHTS	
FIRST REPORT, 1990 <ul style="list-style-type: none"> ■ Emissions resulting from human activities are increasing atmospheric concentrations of greenhouse gases ■ Global temperatures have risen by 0.3°–0.6°C in 100 years. In business-as-usual scenario, likely to increase by 2°C compared to pre-industrial levels by 2025, and 4°C by 2100 ■ Sea-level likely to rise 65 cm by 2100 ■ Report formed basis for negotiation of UN Framework Convention on Climate Change in 1992 	to suggest most of warming attributable to human activities
SECOND REPORT, 1995 <ul style="list-style-type: none"> ■ Revises projected rise in global temperatures to 3°C by 2100, and sea-level rise to 50 cm ■ The scientific underpinning for Kyoto Protocol in 1997 	FOURTH REPORT, 2007 <ul style="list-style-type: none"> ■ Greenhouse gas emissions rose by 70% between 1970 and 2004 ■ Atmospheric concentrations of CO₂ in 2005 (379 ppm) the highest in 650,000 years ■ In worst-case scenario, global temperatures could rise 4.5°C by 2100 from pre-industrial levels; sea-levels could be 60 cm higher than in 1990 ■ Wins 2007 Peace Nobel for IPCC ■ Report is the scientific input for the 2009 Copenhagen climate meeting
THIRD REPORT, 2001 <ul style="list-style-type: none"> ■ Revises predicted temperature rise to 1.4°–5.8°C by 2100 compared to 1990 ■ Rainfall to increase; sea-level likely to rise by 80 cm from 1990 by 2100. ■ Frequency, intensity and duration of extreme weather events to increase ■ Presents new and stronger evidence 	FIFTH REPORT, 2014 <ul style="list-style-type: none"> ■ Temperature rise by 2100 could be 4.8°C from pre-industrial times ■ Atmospheric concentrations of CO₂, CH₄ and N₂O "unprecedented" in last 800,000 years ■ More frequent and longer heat waves "virtually certain" ■ "Large fraction of species" face extinction ■ Forms scientific basis for negotiations of Paris Agreement in 2015

Oxfam's Report

- It said that 'net-zero' carbon targets announced by many countries may be a dangerous distraction from the priority of cutting carbon emissions.
- It says that if the challenge of change is tackled only by way of planting more trees, about 1.6 billion hectares of new forests would be required to remove the world's excess carbon emissions by 2050.
- To limit global warming below 1.5°C and prevent irreversible damage from climate change, the world should cut emissions by 45% by 2030 from 2010 levels, with the sharpest being made by the biggest emitters.
- Currently, countries' plans to cut emissions will only lead to a 1% reduction by 2030.

- Oxfam's report estimates that if only land-based methods to deal with climate change are used, food rises are expected to rise by 80% by 2050.
- If the entire energy sector were to set similar 'net-zero' targets, it would require a land area nearly the size of the Amazon rainforest, equivalent to a third of all farmland worldwide.

Animal Discovery 2020

Recently, *Animal Discovery 2020* was prepared by the Zoological Survey of India (ZSI) and released by the Environment Ministry.

- It reveals that India has added 557 new species to its fauna. Now, there are 1,02,718 faunal species in India.
- It shows that India is positioned 8th in mega biodiversity countries in the world with 0.46 BioD index. Around 23.39% of India's geographical area under forest and tree cover.
- [BioD index is calculated by its percentage of species in each group relative to the total global number of species in each group.]
- Animal Discoveries are the only authentic source of faunal discoveries of India. It is published by the ZSI since 2009 every year.
- It is a document on new species and new records of fauna.

Zoological Survey of India

- Set up by British zoologist Thomas Nelson Annandale in 1916, the ZSI is India's apex organization on animal taxonomy.
- It is a subordinate organization of the Environment Ministry.
- Headquartered in Kolkata, the ZSI BSI has 16 regional circles at different regions of the country.
- ZSI promotes **survey, exploration and research** leading to the advancement of knowledge on many aspects of exceptionally rich faunal diversity of India.
- It has been declared as designated repository for **National Zoological Collection** under the National Biodiversity Act, 2002.

Plant Discovery

- It is prepared by the Botanical Survey of India (BSI) and released by the Environment Ministry since 2007.
- It is a document on new species and new records of flora.

Botanical Survey of India

- It was established in 1890 with objective to explore plant resources of country and to identify plants species with economic virtues.
- Headquartered in Kolkata, the BSI has 9 regional circles at different regions of the country.
- BSI is the apex research organization under the Environment Ministry for carrying out taxonomic and floristic studies on wild plants of India.
- It serves the nation by providing scientific basis for **conservation and sustainable use** of wild plant diversity through survey, documentation, taxonomic research and environmental awareness.

Key National Survey Organizations of India

Survey Organisation	Area of Focus
National Institute of Oceanography	Oceanography
Archeological Survey of India	Archaeology
Botanical Survey of India	Plants
Zoological Survey of India	Animals

Forest Survey of India	Forest resources
Fisheries Survey of India	Fisheries
Geological Survey of India	Geology
Indian Institute of Ecology and Environment	Ecology
Registrar General & Census Commissioner of India	Census of India
Survey of India	Cartography

MAINS PRACTICE QUESTIONS

Write answers for the following handpicked questions August 2021 Current Affairs. For more questions and solutions refer [Monthly Mainstorming August 2021 document](#)

- 1) Do you think that the creation of citizens' assemblies will fulfill an essential requirement for good governance in the country? Comment
- 2) Localising the Sustainable Development Goals at the rural level provide an institutional framework that can align with national and global priorities. Explain
- 3) Amidst uncertainties, India must leverage its soft power earned from its contribution to Afghanistan in various ways. Analyse
- 4) Improving the viability and sustainability of the Business Correspondent model in India can pave the way for government's financial inclusion agenda. Explain
- 5) Bio-fortification of food points towards the beginning of a new journey from food security to nutritional security in the country. Examine
- 6) Central Bank Digital Currency is a new technological innovation designed to overshadow impact caused by the crypto currency. Do you agree with this view? Comment
- 7) The Inter-governmental Panel on Climate Change has issued strongest warning on global warming points to an opportunity that still exists. Elaborate
- 8) Addressing gender inequality in education requires providing social, financial and emotional support to the girl child in the country. Explain
- 9) In a data-driven world, the country requires data based policy making for making quality governance decisions. Explain
- 10) United Nation's Security Council's response to the multiple stakeholder approach to enhance maritime security would be setting a paradigm for upholding multi-dimensional security. Explain

PRELIMS MCQS WITH SOLUTIONS

- 1) Consider the following statements with respect to e-RUPI
1. It is a cashless and contactless digital payments medium, which will be delivered to mobile phones of beneficiaries in form of an SMS-string or a QR code.
 2. It has been developed by the National Payments Corporation of India in collaboration with Ministry of Health and Family Welfare and National Health Authority.

Which of the statement(s) given above is/are correct?

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

- 2) Which of the following statements is incorrect?

- a. Natural rubber is not naturally suited for colder conditions during winter in the Northeast region of India
- b. Kerala is the major producer of rubber in India
- c. Rubber production seen a significant increase in the North-Eastern parts of India since 2017
- d. World's first genetically modified (GM) rubber plant was recently planted in Arunachal Pradesh

- 3) Consider the following statements with respective to Pangolin

1. Indian pangolin is found throughout North Eastern states, where Chinese Pangolin is found in Kumaon Himalayas.
2. Indian pangolin is listed as –endangered and the Chinese pangolin has been listed as –critically endangered.

Which of the statement(s) given above is/are incorrect?

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

- 4) The Ministry of New and Renewable Energy has been implementing a Scheme to support promotion of biomass based cogeneration in sugar mills and other industries. Under the Scheme, which of the following can be used as Biomass Resources?

1. Weeds
2. Bagasse
3. Municipal Solid Waste
4. Agro-based industrial residue
5. Wood waste produced in industrial operations

Select the correct answer using the codes given below:

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

- 5) Consider the following statements with respect to Pardoning Powers of the Governor
1. Under Article 161, the Governor has pardoning powers, which also extends to death sentences.
 2. This power will override the restrictions imposed under Section 433-A of the Criminal Procedure Code.

Which of the statement(s) given above is/are correct?

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

- 6) Consider the following statements with respect to Floating rate funds
1. It is a fund that invests in financial instruments that pays a variable or floating interest rate.
 2. According to SEBI rules, 65% of the corpus of floating rate funds has to be invested in floating rate instruments.

Which of the statement(s) given above is/are correct?

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

- 7) With respect to Foreign Direct Investment (FDI) in Indian Textiles sector, consider the following statements:
1. Textile sector is open to FDI under 100% automatic route.
 2. Nearly 80% of textile units in India are Micro Small & Medium Enterprises (MSME).
 3. Japan ranks first as the major FDI investor in Indian Textiles sector.

Which of the statements given above are correct?

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

- 8) The Pensilungpa Glacier, sometimes seen in the news recently, is located in?
- a. Alaska, USA
 - b. Ladakh, India
 - c. Santa Cruz, Argentina
 - d. Southern Alps, New Zealand

- 9) Consider the following statements with respect to Reverse Merger
1. It is a combination where a smaller company merges into a larger one.
 2. In the case of small finance banks, the holding company is expected to be merged into the subsidiary bank, which is referred as downstream merger.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only

- c. Both 1 and 2
- d. Neither 1 nor 2

10) With reference to the findings of 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), consider the following statements:

- 1. The ocean surface will continue to warm more than the land surface.
- 2. The Arctic will continue to warm more than the global surface temperature.
- 3. Human-induced global warming has been more rapid in Africa than the rest of the world.

Which of the statement(s) given above is/are correct?

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

11) With reference to Net Zero Emissions, consider the following statements:

- 1. It is a condition in which a country would bring down its emissions to zero, taking pre-industrial levels as base range.
- 2. India has not yet committed to a net zero timeline.

Which of the statement(s) given above is/are correct?

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

12) Consider the following statements:

- 1. Climate warming induced permafrost thawing could release greenhouse gases in to the atmosphere and further amplifies climate change.
- 2. The Antarctic is the biggest carbon pool on Earth, storing twice as much carbon in its permafrost, than is currently stored in the atmosphere.

Which of the statement(s) given above is/are correct?

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

13) With reference to Anti-dumping duty, consider the following statements:

- 1. It is a measure to protect domestic industry and act as an instrument to establish fair trade.
- 2. Import of cheap products through illegal trade channels like smuggling falls within the purview of dumping.
- 3. The use of anti-dumping measure as an instrument of fair competition is permitted by the World Trade Organization (WTO).

Which of the statements given above is/are correct?

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

- c. 1 and 3 only
- d. 1, 2 and 3

14) Which of the following is the nodal agency for landslide studies in India?

- a. Geological Survey of India
- b. National Disaster Management Authority
- c. National Institute of Public Finance and Policy
- d. Building Materials and Technology Promotion Council

15) Consider the following statements with respect to Dara Shikoh

- 1. He was designated with the title Padshahzada-i-Buzurg Martaba (Prince of High Rank).
- 2. He authored a work which argues for the harmony of Sufi philosophy in Islam and Vedanta philosophy in Hinduism.

Which of the statement(s) given above is/are correct?

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

16) With respect to the Constitution (One Hundred and Twenty Seventh Amendment) Bill, 2021, consider the following statements:

- 1. The Bill empowers the states and union territories to prepare their own list of socially and educationally backward classes.
- 2. This list must be made by law, and may differ from the central list.

Which of the given statements above is/are correct?

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

17) Factors like guaranteed sales of sugarcane and public distribution of sugar have helped India become the second-largest producer of sugar worldwide. Which of the following statements are correct with respect to Sugar production in India?

- 1. North India produces sugar canes with higher sucrose content and higher yield per unit area due to nutrient rich soil.
- 2. About 60% of the sugar production comes from Maharashtra and Uttar Pradesh.
- 3. South India's co-operative sugar mills are better managed when compared with north India.

Select the correct answer using the codes given below:

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

18) Consider the following statements with respect to Taxation in India

1. Constitution makes it clear that no one has the right to levy or charge taxes except by the authority of law.
2. The State's sovereign right to tax is not absolute under international law.

Which of the statement(s) given above is/are correct?

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

19) 'IndiGau', sometimes seen in the news recently, refers to?

- a. Indigenously developed vaccine for cattle
- b. Cattle genomic chip for preserving indigenous breeds
- c. Animal health card issued under the National Mission for Bovine productivity
- d. A web portal to boost dairy productivity in India by organizing the livestock market

20) Consider the following statements with respect to Socio Economic Caste Census

1. All the personal information collected under SECC is open for use by Government departments.
2. It is conducted under the overall coordination of Office of the Registrar General and Census Commissioner under Ministry of Home Affairs.

Which of the statement(s) given above is/are incorrect?

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

21) Which of the following are the applications of Hydrogels?

1. Soft robotics
2. Tissue engineering
3. Wastewater treatment
4. Regenerative medicine

Select the correct answer using the codes given below:

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

22) With reference to EBITDA, consider the following statements:

1. It is a measure of a company's overall financial performance and in some circumstances can be used as an alternative to net income.
2. The measure includes interest, taxes and excludes depreciation and amortization.

Which of the statement(s) given above is/are correct?

- a. 1 only

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

23) Consider the following statements about Nine Dash Line

1. It is a straight line representing China's claim over 90% areas in South China Sea that traces its origin back to 1947.
2. It is a continuous line meaning that other countries cannot pass through the lines freely without its permission

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

24) Consider the following statements about Drone Rules 2021

1. According to the new rules, the quantum of fees to be paid for the approval is linked to the size of the drones.
2. There are 3 zones in place to restrict the areas where drones can fly.
3. Foreign ownership of drones is allowed and security clearance before registration has been done away with.

Which of the statements given above is/are correct?

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

25) With reference to Greenland, consider the following statements:

1. It is the world's largest island between the Arctic and Atlantic Oceans.
2. It has three-quarters of its surface covered with a permanent ice sheets.
3. Recently, for the 1st time on record, the summit of Greenland received rainfall and not snow.

Which of the statement(s) given above is/are correct?

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

26) In the administrative records of the British East India Company, —Koots| refers to?

- a. A Peasant uprising
- b. A form of Land tax
- c. A title given to Indians
- d. Right to trade duty free

27) Assertion (A): Polar Amplification is much stronger in the Arctic than in Antarctica.

Reason (R): The Arctic is an ocean covered by sea ice, while Antarctica is an elevated continent covered in more permanent ice and snow.

Select the correct answer using the codes given below:

- a. Both A and R are true and R is the correct explanation of A
- b. Both A and R are true but R is not the correct explanation of A
- c. A is true but R is false
- d. A is false but R is true

28) Consider the following statements with respect to Slender Loris

- 1. They are found in tropical rainforests, scrub forests, semi-deciduous forests, and swamps.
- 2. In south India viable population of the animal is found in Kadavur Reserve Forest, Tamil Nadu.
- 3. It is listed as Critically Endangered under IUCN red list

Which of the statement(s) given above is/are correct?

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

29) With reference to Ramsar Sites in India, consider the following statements:

- 1. India currently has 46 Ramsar sites designated as Wetlands of International Importance.
- 2. Uttar Pradesh has the most number of Ramsar Sites in India.
- 3. Currently, no sites in India are listed under Montreux record, a register of wetland sites where changes in ecological character have occurred, are occurring, or are likely to occur.

Which of the statement(s) given above is/are correct?

- a. 2 only
- b. 1 and 2 only
- c. 2 and 3 only
- d. None of the above

30) Consider the following statements with respect to Financial Inclusion Index

- 1. It is being released once in a year by the Ministry of Finance.
- 2. It has no base year.
- 3. It covers banking, investments, insurance, postal and pension sectors.

Which of the statement(s) given above is/are correct?

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

31) Consider the following statements with respect to National Monetisation Pipeline

- 1. It is a roadmap of or the asset monetization of various brownfield infrastructure assets.

2. It has been created for a 4-year period from financial year 2021-22 to 2024-25.
3. Department of Investment and Public Asset Management under Ministry of Finance finalised the framework for the National Monetisation Pipeline.

Which of the statement(s) given above is/are correct?

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

32) Which of the following statements is correct about UNITE Aware?

- a. It is a peacekeeping mission by UN to restore democratic government in Afghanistan.
- b. It is a resolution in UNSC put forward by India to create awareness about Rohingya refugee crisis in the country.
- c. It is a technological platform to enhance the security of UN Peacekeeping forces.
- d. It is a mutual agreement among G7 nations to combat climate change through strengthening Nationally Determined Contributions (NDC).

33) Consider the following statements about Kigali Amendment to the Montreal Protocol

1. It aims to phase down all the ozone depleting substances by cutting both their production and consumption.
2. It is legally binding and came into force in 2019.
3. Under the amendment, India's reduction of Hydrofluorocarbon (HFC) will begin from 2028 and target is to reduce it by 80% by the year 2047.

Which of the statement(s) given above is/are correct?

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

34) In the light of recent controversy over telephonic interceptions in Pegasus issue, the government has recently informed the parliament about the competent authority to approve legal telephonic interception under Indian Telegraph Act, 1885 and IT Act, 2000. Which of the following authorities is entrusted with such powers in case of Central Government?

- a. Secretary to Department of Telecommunication
- b. Minister of State (Electronics and IT)
- c. Union Home Secretary
- d. Prime Ministers' Office (PMO)

35) With respect to Gulf Stream, consider the following statements:

1. It is the biggest current in the North Atlantic Ocean.
2. It is a warm current composed of both vertical – Atlantic Meridional Overturning Circulation (AMOC) and horizontal - North Atlantic Subtropical Gyre circulations.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only

- c. Both 1 and 2
- d. Neither 1 nor 2

36) DRDO has recently developed an Advanced Chaff Technology for Indian Air Force. Chaff Technology is associated with?

- a. Search and Rescue
- b. Intelligence gathering
- c. Underwater Detection Capabilities
- d. Protection from hostile radar threats

37) Arrange the following countries in descending order based on the amount of coal they exported to India, during 2020-21:

- 1. Australia
- 2. USA
- 3. Russia
- 4. Indonesia
- 5. South Africa

Which of the statement(s) given above is/are correct?

- a. 1-2-3-4-5
- b. 4-1-5-2-3
- c. 5-4-3-2-1
- d. 4-2-1-5-3

38) Sunil Sethi Commission, sometimes seen in the news recently, is constituted for which of the following purposes?

- a. To study the impact of pandemic lockdowns in public behavior
- b. To double the production and quadruple the exports of handlooms
- c. To suggest measures to improve management of public funds and reduce fiscal deficit
- d. To examine the feasibility of integrating the agriculture year with the financial year

39) Match the following:

Geo-Heritage Sites – States

- 1. Chabimura – a. Tripura
- 2. Sangetsar Tso – b. Manipur
- 3. Loktak Lake – c. Meghalaya
- 4. Mawmluh Cave – d. Arunachal Pradesh

Select the correct answer using the codes given above:

- a. 1-c; 2-d; 3-b; 4-a
- b. 1-a; 2-d; 3-b; 4-c
- c. 1-c; 2-a; 3-b; 4-d
- d. 1-a; 2-c; 3-b; 4-d

40) Binance, often seen in the news recently, refers to?

- a. A Cryptocurrency Exchange
- b. A notice issued to a fugitive economic offender
- c. A microprocessor to carry out cryptographic operations
- d. A stage of a market cycle where asset prices rise to irrationally high levels

41) Consider the following statements with respect to Ubharte Sitaare Fund

- 1. Under the scheme, an identified company is supported even if it is currently underperforming or may be unable to tap its latent potential to grow.
- 2. The fund has been set up by the EXIM Bank and Small Industries Development Bank of India (SIDBI).
- 3. The fund is a mix of structured support comprises both financial and advisory services.

Which of the statements given above are correct?

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

42) Jalakanyaka, sometimes seen in the news recently, is?

- a. Marine algae species discovered in Andaman & Nicobar Islands
- b. Jain stories related to previous births of Mahavira in both human & animal form
- c. Ancient system of astronomy used during the period of Vijayanagar Empire
- d. A form of water sport played by the Irula tribes of Kerala along the Arabian Coast

43) Match the following:

Programme - Objectives

- 1. PRIYA - a. Accessibility booklet
- 2. NISHTHA - b. Foundational Literacy and Numeracy
- 3. SARTHAQ - c. NEP implementation plan
- 4. NIPUN Bharat - d. Capacity building of Secondary teachers

Select the correct answer using the codes given below:

- a. 1-a; 2-d; 3-c; 4-b
- b. 1-c; 2-d; 3-a; 4-b
- c. 1-a; 2-b; 3-c; 4-d
- d. 1-d; 2-c; 3-a; 4-b

44) Consider the following statements about India's highest herbal park

- 1. It is located in Leh district in the UT of Ladakh.
- 2. It is inaugurated to conserve various alpine species and study their ecology.
- 3. It contains a dedicated section on Ashtavarga species, a group of herbs found in Himalayas.

Which of the statements given above are correct?

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

- c. 1 and 3 only
- d. 1,2 and 3

45) Consider the following statements about Delhi's Smog Tower

1. It uses updraft air cleaning system that purifies air by sucking it through the fans present at the bottom and filtered air is released at the top.
2. It cannot filter particles less than 0.5 microns.

Which of the statement(s) given above is/are correct?

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

46) Consider the following statements about Children's Climate Risk Index

1. It is released by German Watch and UNEP.
2. According to it, India is placed at extremely high risk countries with flooding and drought being the repeated environment shocks.
3. Nepal, Bhutan and Sri Lanka ranked better than India.

Which of the statements given above are correct?

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

47) Consider the following statements about SAMRIDH Scheme

1. It is launched by the Ministry of Skill Development and Entrepreneurship.
2. Its aim is to create a conducive platform for the growth of software product start-ups.
3. It will provide both funding and enhancing their products through skill sets together to enable startups to become successful.

Which of the statements given above is/are correct?

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

48) The Reserve Bank of India (RBI) constituted an Expert Committee on Primary Urban Co-operative Banks (UCBs) under the chairmanship of N S Vishwanathan. The committee has released its report recently. Which of the following is not one among its recommendations?

- a. It suggested for setting up an Umbrella Organisation (UO) to oversee co-operative banks.
- b. It suggested for a four-tier structure for the urban cooperative banks (UCBs) depending upon the deposits.
- c. It suggested that the Supervisory Action Framework should follow a triple indicator approach considering asset quality, Profitability and capital instead of current, twin-indicator approach.
- d. It prescribed separate ceilings for home loans and unsecured loans for different categories of UCBs.

49) With respect to Bharat Series (BH-series), launched recently, consider the following statements:

1. It facilitates free movement of personal vehicles across States/UTs of India upon relocation to a new State/UT.
2. This facility will be available to all Indian Citizens and not available to foreigners.
3. Under section 47 of the Motor Vehicles Act, 1988, a person is allowed to keep the vehicle for not more than 12 months in any state other than the state where the vehicle is registered.

Which of the statement(s) given above is/are correct?

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

50) Consider the following statements about Leaded Petrol

1. According to UNEP, World has completely eradicated the use of Leaded Petrol.
2. Leaded Petrol mainly affects the emission control system such as catalytic converters.
3. India's phase down of leaded petrol got completed way back in 2000.

Which of the statements given above is/are correct?

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

Answers

1. c

e-RUPI

- It is a cashless and contactless instrument for digital payment.
- It has been developed by National Payments Corporation of India on its UPI platform, in collaboration with the Department of Financial Services, Ministry of Health & Family Welfare and National Health Authority.

Working

- It is a QR code or SMS string-based e-Voucher, which is delivered to the mobile of the beneficiaries.
- The users of this seamless one-time payment mechanism will be able to redeem the voucher without a card, digital payments app or internet banking access, at the service provider.
- e-RUPI connects the sponsors of the services with the beneficiaries and service providers in a digital manner without any physical interface.
- It also ensures that the payment to the service provider is made only after the transaction is completed.
- Being pre-paid in nature, it assures timely payment to the service provider without involvement of any intermediary.

Benefits

- It is expected to be a revolutionary initiative in the direction of ensuring a leak-proof delivery of welfare services.
- It can also be used for delivering services under schemes meant for providing drugs and nutritional support under Mother and Child welfare schemes, TB eradication programmes, drugs & diagnostics under schemes like Ayushman Bharat Pradhan Mantri Jan Arogya Yojana, fertilizer subsidies etc.
- Even the private sector can leverage these digital vouchers as part of their employee welfare and corporate social responsibility programmes.

2. d

Rubber Production in India

- Kerala is the major producer of rubber in India.
- Rubber production seen a significant increase in the North-Eastern parts of India since 2017.
- A Rubber Board research farm in Guwahati, Assam has recently planted the World's first genetically modified (GM) rubber plant tailored for the climatic conditions in the Northeast.
- Natural rubber is a native of warm humid Amazon forests and is not naturally suited for the colder conditions in the Northeast, which is one of the largest producers of rubber in India.
- Growth of young rubber plants remains suspended during the winter months, which are also characterized by progressive drying of the soil.
- This is the reason for the long immaturity period of this crop in the region.
- The GM rubber has additional copies of the gene MnSOD, or manganese-containing superoxide dismutase, inserted in the plant, which is expected to tide over the severe cold conditions during winter — a major factor affecting the growth of young rubber plants in the region.

3. a

Pangolin

- The Indian Pangolin is found throughout the country south of the Himalayas, excluding the north-eastern region while the Chinese Pangolin ranges through Assam and the eastern Himalayas.
- The Chinese pangolin is distinguished from other Asian pangolins by its almost helmeted appearance, smaller scales than the Indian pangolin.
- All pangolin species are listed in Convention on International Trade in Endangered Species (CITES) Appendix I.
- In India, pangolins, both Indian and Chinese, are protected under Schedule 1 of the Wildlife (Protection) Act 1972.

4. c

- Scheme to support promotion of biomass based cogeneration in sugar mills and other industries
- The Ministry of New & Renewable Energy has been implementing a scheme to support promotion of biomass based cogeneration in sugar mills and other industries for power generation in the country.
- The scheme was applicable for projects set up across India.
- The programme will provide Central Financial Assistance (CFA) for projects utilizing biomass like bagasse, agro-based industrial residue, crop residues, wood produced through energy plantations, weeds, wood waste produced in industrial operations, etc.
- Municipal Solid Waste is not covered under the programme.
- CFA will be provided at the rate of Rs.25 Lakh/MW (for bagasse cogeneration projects) and Rs.50 Lakh/MW (Nonbagasse Cogeneration projects) under the scheme.

5. b

Pardoning Powers of the Governor

- Under Article 161, the Governor too has pardoning powers, but these do not extend to death sentences.
- The power of the President to grant pardon extends in cases where the punishment or sentence is by a Court Martial but Article 161 does not provide any such power to the Governor.
- The Governor has a power to grant pardons, reprieves, respites and remissions of punishment or to suspend, remit or commute the sentence of any person if the prisoner has not undergone 14 years or more of actual imprisonment.
- Recently, the Supreme Court has observed that the power of Governor under Article 161 of the Constitution to commute sentence or to pardon will override the restrictions imposed under Section 433-A of the Criminal Procedure Code.

- The court held that the power conferred on the Governor, though exercised on the aid and advice of the State, is without any restriction of the actual period of imprisonment undergone by the prisoner.
- The remission under Article 161 of the Constitution will override Section 433-A of the Code, if the State Government decides to be governed of its constitutional power.
- 433-A of the Criminal Procedure Code
- It emphasis on restriction on powers of remission or Commutation in certain cases.
- Where a sentence of death imposed on a person has been commuted under section 433 into one of imprisonment for life, such person shall not be released from prison unless he had served at least fourteen years of imprisonment.

6. c

Floating rate funds

- A floating rate fund, which can be a mutual fund or an exchange-traded fund (ETF), invests in bonds and debt instruments whose interest payments fluctuate with an underlying interest rate level.
- Typically, a fixed-rate investment will have a stable, predictable income.
- However, as interest rates rise, fixed-rate investments lag behind the market since their returns remain fixed.
- Floating rate funds aim to provide investors with a flexible interest income in a rising rate environment.
- Floating rate funds buy bonds whose interest rates change according to the changing rates in the economy.
- This feature is thus supposed to insulate them from losses because of the rate hike and can even increase their returns as rates rise.

7. d

FDI in Textiles Sector

- As per Government FDI Policy for Textiles Sector, Textiles is open to FDI under 100% automatic route.
- Nearly 80% of textiles units in India are MSME resulting in fragmented nature of industry.
- Japan has invested the maximum amount US\$ 381.47 million as FDI in textiles sector.
- There are no FDI specific incentives for artisans, weavers and labourers provided by the Government.
- Weavers, artisans, cooperative societies, handloom and handicraft agencies were being facilitated to register on Government e-Marketplace (GeM) in all States.
- This arrangement would help in marketing of their products and getting reasonable price by eliminating intermediaries.

8. b

Pensilungpa Glacier

- It is located in Zaskar, Ladakh.
- Researchers have recently found that it is being retreating, and attributed the retreat to an increase in the temperature and decrease in precipitation during winters.
- The study also suggests that due to continuous rise in the air temperature in line with the global trend, the melting would increase, and it is possible that the precipitation of summer periods at higher altitudes will change from snow to rain, and that may influence the summer and winter pattern.

9. c

10. c

11. b

12. a

Arctic Warming

- In the Arctic, large amounts of organic carbon are stored in permafrost.
- Permafrost is the ground that remains frozen throughout the year.

- If significant areas of permafrost thaw as the climate warms, some of that carbon may be released into the atmosphere in the form of carbon dioxide or methane, resulting in additional warming.
- The Arctic is the biggest climate-sensitive carbon pool on Earth, storing twice as much carbon in its frozen soils, or permafrost, than is currently stored in the atmosphere.
- As the Arctic region warms faster than anywhere else on earth, there are concerns that this warming could release greenhouse gases to the atmosphere and therefore significantly amplify climate change.

Permafrost

- The carbon in the permafrost has built up over thousands of years, as dead plants have been buried and accumulated within layers of frozen soil, where the cold prevents the organic material from decomposing.
- As the Arctic warms and soils thaw, the organic matter in these soils begins to decompose rapidly and return to the atmosphere as either carbon dioxide or methane, which are both important greenhouse gases.
- Permafrost can also thaw abruptly in a given place, due to melting ice in the ground reshaping Arctic landscapes, lakes growing and draining, and fires burning away insulating surface soil layers.

13. a

Anti-Dumping Duty

- Dumping is said to occur when the goods are exported by a country to another country at a price lower than its normal value.
- This is an unfair trade practice which can have a distortive effect on international trade.
- Anti-dumping is a measure to rectify the situation arising out of the dumping of goods and its trade distortive effect.
- In fact, anti-dumping is an instrument for ensuring fair trade and is not a measure of protection per se for the domestic industry.
- It provides relief to the domestic industry against the injury caused by dumping.
- The use of anti-dumping measure as an instrument of fair competition is permitted by the WTO.

Recent Developments

- The Union government recently revoked anti-dumping duty (ADD) on viscose staple fibre originating in or imported from China and Indonesia.
- As an impact, the fibre will be available in India at competitive prices and thus benefit downstream sectors — weaving and garmenting.
- Indian textile units will be able to export viscose products at internationally competitive prices and produce more of viscose-based products.
- Viscose is largely used by the textile and clothing industry to make apparel, mainly for women and children, in the domestic market.

14. a

- The Geological Survey of India (GSI), an attached office under the Ministry of Mines (MoM), is the nodal agency for landslide studies in India providing quality geo-scientific information in order to minimize loss of life and damage to property from landslide hazards.
- The Landslide Hazard Zonation Map of India marks over 70% of the State as ‘high risk’ and 14% as ‘severe’ to ‘very high risk’.

15.c

Dara Shikoh

- Dara Shikoh was Mughal emperor Shah Jahan’s son, was an expected heir of Mughal rule.
- In the war of succession which ensued after Shah Jahan’s illness in 1657, Dara was defeated by his younger brother Prince Muhiuddin (Aurangzeb).
- Dara was a liberal-minded unorthodox Muslim as opposed to the orthodox Aurangzeb.
- He authored the work —The Confluence of the Two Seas, which argues for the harmony of Sufi philosophy in Islam and Vedanta philosophy in Hinduism.

16. c

The Constitution (One Hundred and Twenty Seventh Amendment) 2021 Bill

- The bill amends this to provide that the President may notify the list of socially and educationally backward classes only for purposes of the central government.
- This central list will be prepared and maintained by the central government.
- The Bill enables states and union territories to prepare their own list of socially and educationally backward classes.
- This list must be made by law, and may differ from the central list.

17. b

Sugar production in India

- Sugar industry is broadly distributed over two major areas of production- Uttar Pradesh, Bihar, Haryana and Punjab in the north and Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.
- South India has tropical climate which is suitable for higher sucrose content giving higher yield per unit area as compared to north India.
- The crushing season is also much longer in the south than in the north.
- For example, crushing season is of nearly four months only in the north from November to February, whereas it is of nearly 7-8 months in the south where it starts in October and continues till May and June.
- The co-operative sugar mills are better managed in the south than in the north.
- Most of the mills in the south are new which are equipped with modern machinery.
- Over half of sugar mills are located in Maharashtra and Uttar Pradesh and about 60 per cent of the production comes from these two states.

18. c

Taxation in India

- Constitution gives the government the right to levy taxes on individuals and organisations.
- Any tax being charged has to be backed by a law passed by the legislature or Parliament (Article 265).
- Taxes in India come under a three-tier system based on the Central, State and local governments, and the Seventh Schedule of the Constitution puts separate heads of taxation under the Union and Statelist.
- There is no separate head under the Concurrent list, meaning Union and the States have no concurrent power of taxation.
- India has a sovereign right to tax, however sovereign right is subject to certain limitations, and under international law the sovereign right to tax is not absolute.
- Recently, the Government of India introduced The Taxation Laws (Amendment) Bill, 2021 in the Lok Sabha which seeks to withdraw tax demands made using a 2012 retrospective legislation to tax the indirect transfer of Indian assets.
- The government has stressed the need to establish its sovereign right to taxation.

19. b

IndiGau

- It is purely indigenous and the largest cattle chip of the world.
- It is a great example of self-reliant India.
- This chip will have practical utility in the Governments schemes to achieve the goal of conservation of our own breeds with better characters and help towards doubling of farmers' income by 2022.

20. b

Socio Economic Caste Census

- SECC was conducted in 2011 for the first time since 1931.

- SECC 2011 has three census components which were conducted by three separate authorities but under the overall coordination of Department of Rural Development in the Government of India.
- Census in Rural Area has been conducted by the Department of Rural Development (DoRD).
- Census in Urban areas is under the administrative jurisdiction of the Ministry of Housing and Urban Poverty Alleviation (MoHUPA).
- Caste Census is under the administrative control of Ministry of Home Affairs: Registrar General of India (RGI) and Census Commissioner of India.
- The Decennial Census provides a portrait of the Indian population, while the SECC is a tool to identify beneficiaries of state support.
- Since the Decennial Census falls under the Census Act of 1948, all data are considered confidential, whereas all the personal information given in the SECC is open for use by Government departments to grant and/or restrict benefits to households.

21. d

- A group of researchers from Indian Institute of Technology (IIT), Guwahati have developed hydrogel-based electrodes that could enhance the performance of an energy storage device.
- They have developed the hydrogel electrodes by simple room temperature process in which graphene and MXene spontaneously assemble themselves over metal plates within a water medium.
- Graphene, a single atom thin carbon sheet, stores charge on its surface via physical adsorption, known as electrical double layer mechanism (ELDC).
- Whereas, MXene, nanosheets of titanium carbide, stores charge via both ELDC and chemical reaction on its surface, known as pseudo-capacitance.

Hydrogels

- They are three-dimensional (3D) cross-linked polymer networks, which can absorb and retain large amount of water.
- A hydrogel is a porous framework of interconnected materials, in which water remains stably locked within the pores.
- They have been applied in a wide range of biomedical and engineering applications, ranging from tissue engineering and regenerative medicine to wastewater treatment and soft robotics.

22. a

Earnings before interest, taxes, depreciation, and amortization (EBITDA)

- It is a measure of a company's overall financial performance and is used as an alternative to net income in some circumstances.
- EBITDA is now commonly used to compare the financial health of companies and to evaluate firms with different tax rates and depreciation policies.
- EBITDA, however, can be misleading because it strips out the cost of capital investments like property, plant, and equipment.
- Among its drawbacks, EBITDA is not a substitute for analyzing a company's cash flow and can make a company look like it has more money to make interest payments than it really does.
- EBITDA also ignores the quality of a company's earnings and can make it look cheaper than it really is.

23.d Nine Dash Line

1. It is a U-shaped line that owes its origin back to 1947, demarcated by Chinese geographer YangHuairan.
2. It is a discontinuous line meaning that other countries can pass through it freely.
3. It includes the disputed Paracel and Spratly islands.
4. It represents China's historical claim over 90% of the regions in South China Sea.
5. China included it in its map in 2009 when it submitted the document in UN during a dispute with Vietnam.
6. It is deemed by most countries as being inconsistent with the United Nations Convention on the Law of the Sea (UNCLOS).

7. UNCLOS gives States the right to establish a territorial sea up to only 12 nautical miles.

24. b

- The central government has notified the Drone Rules 2021, which is much more liberalised than previous rules.
- The quantum of fees, which was earlier linked to the size of drone, has been reduced and delinked from the size.
- For example, the remote pilot license fee, which was Rs 3,000 for a large size drone, has been reduced to Rs 100, which is the fee for all categories of drones.
- The three zones - yellow, green and red have been demarcated to tell drone operators where they can and cannot fly their aircraft systems.
- The government has done away with the need for security clearance prior to the issuance of a registration or license.
- Also, on the part of companies operating drones, foreign ownership has been allowed.
- However, the import of drones will continue to be regulated by the Directorate General of Foreign Trade.

25. d

Rain at Greenland Summit

- For the 1st time on record, the summit of Greenland received rain and not snow, just as temperatures at the spot went above freezing for the 3rd time in less than 10 years.
- This was the heaviest rainfall that the Greenland received since record keeping began in 1950.
- Greenland is the world's largest island between the Arctic and Atlantic Oceans.
- Three-quarters of its surface is covered with a permanent ice sheet.
- At the highest point on Greenland's ice sheet, the US's National Science Foundation maintains a Summit Station, a research facility that observes changes occurring over the island as well as in Arctic weather.
- The research facility observed rain at the normally frigid summit, with the precipitation extending up to Greenland's southeast coast.
- Not only is water warmer than the usual snow, it's also darker - so it absorbs more sunlight rather than reflecting it away.
- Rain & high temperatures triggered extensive melting here, which is 7 times more than daily average observed at this time (August) of the year.
- Rapid ice melting will be running off into the ocean in volumes, thus accelerating global sea level rise.
- Concern - The UN's -code red climate report concluded that the burning of fossil fuels led to Greenland melting in the last 20 years.
- Arctic Ocean may witness ice-free summers by 2050 due to extreme climate interventions.
- If that happens, sea levels could rise by 20 feet, threatening low-lying cities around the world such as Mumbai, New York, etc.
- Rapid melting is also threatening polar bears, which have to make their way towards Greenland's interior from the coasts, where they usually find enough food.

26. a

Koots

- These are peasant uprisings that broke out in South Kanara District during 1830-31.
- The uprising broke out against the East India Company in the coastal belt reached the stage of an armed struggle in 1837.
- The revolt by peasants was not related to the freedom movement, though, but against the high land revenue (tax) assessment and the absence of a lucrative market for farm produce.
- But it did motivate people to join the freedom movement after 1850, say researchers.

- The peasants were mainly agitated over the company for introducing a system that mandated that taxes should be paid only in cash and not in kind.

27. a

Polar Amplification

- It is much stronger in the Arctic than in Antarctica.
- This difference is because the Arctic is an ocean covered by sea ice, while Antarctica is an elevated continent covered in more permanent ice and snow.
- In fact, the Antarctic continent has not warmed in the past seven decades, despite a steady increase in the atmospheric concentrations of greenhouse gases.
- The exception is the Antarctic peninsula, which juts out further north into the Southern Ocean and has been warming faster than any other terrestrial environment in the southern hemisphere during the latter half of the 20th century.
- Satellite data also show that between 2002 and 2020, Antarctica lost an average of 149 billion metric tonnes of ice per year, partly because the oceans around the continent are warming.

28. a

29. b

Wetlands of International Importance (Ramsar Sites)

- Four more wetlands from India get recognition from the Ramsar Secretariat as Ramsar sites recently.
- With this, the number of Ramsar sites in India is increased to 46.
- Uttar Pradesh, with 8 Ramsar Sites, has the most number of Ramsar Sites in India.

Montreux Record

- It is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.
- It is maintained as part of the Ramsar List.
- At present, there are two Indian sites Loktak Lake, Manipur and Keoladeo National Park, Rajasthan are on the Montreux Record.

30. c

Financial Inclusion Index

- Financial Inclusion Index is released by RBI once in a year in the month of July.
- It is to capture the extent of financial inclusion across the country.
- It comprises of 3 parameters - Access (35%), Usage (45%), and Quality (20%) .
- It incorporates details of banking, investments, insurance, postal as well as the pension sector in consultation with the government and respective sectoral regulators.
- It has no base year as it reflects the cumulative efforts of various sectors towards financial inclusion in the country.
- Its value ranges from 0 to 100 in which 0 represents financial exclusion and 100 reflects complete financial inclusion.

31. c

National Monetisation Pipeline

- NITI Aayog has finalised the National Monetisation Pipeline framework for financial year 2021-22 to 2024-25.
- It serve as a roadmap for the asset monetization of various brownfield infrastructure assets across sectors including roads, railways, aviation, power, oil and gas, and warehousing.

- Central ministries were given a target of Rs 2.5 trillion for monetising their assets over three years starting 2021-22 (FY22).

32. c

UNITE Aware

- India is currently presiding over UNSC. In its capacity, it has rolled out an initiative in partnership with UN called – UNITE Aware.
- It is a technological platform to enhance the security of UN Peacekeeping forces.
- It is to ensure that entire peacekeeping operation can be visualized, coordinated and monitored on a real time basis in order to prevent any attack or respond to an attack immediately.
- It is rolled out in four UN Peacekeeping Missions – UNMISS (Sudan), UNFICYP (Cyprus), MINUSMA (Mali) and AMISOM (Somalia)

33. d

Kigali Amendment to Montreal Protocol

- Union Cabinet has recently approved the ratification of the Kigali Amendment to the Montreal Protocol on Substances that deplete the ozone layer.
- In 2016, Kigali amendment was agreed by more than 170 countries and came into force in 2019.
- It is legally binding.
- The amendment aims to phase down Hydrofluorocarbon (HFC) i.e to achieve over 80% reduction in HFC by 2047.
- HFCs were introduced as a replacement to ozone depleting substances such as chlorofluorocarbons and hydro chlorofluorocarbons.
- Thus, HFCs have zero ozone depleting potential but known to be hundreds, even thousands, of times more potent than carbon dioxide in their ability to cause global warming.
- With the Kigali Amendment, the Montreal Protocol has become an even more powerful instrument against global warming.
- Under the amendment, India's reduction of Hydrofluorocarbon (HFC) will begin from 2028 and target is to reduce it by 80% by the year 2047.

34. c

Telephonic Interceptions

- In a recent reply by the government in the Parliament, it is made clear that that the Home Secretary is the competent authority to deal with legal interceptions in case of Central government and Secretary in charge of Home Department in case of States/Union Territories.
 - Home Secretary's power to approve legal interceptions is mandated under
- Section 5(2) of the Indian Telegraph Act, 1885 read with Rule 419A of Indian Telegraph (1st Amendment of 2014) Rules, 2014
 - Section 69 of the Information Technology Act, 2000 read with the Information Technology) Procedure and Safeguards for Interception, Monitoring and Decryption of Information) Rules, 2009.

35. c

Gulf Stream

- The Gulf Stream is the biggest current in the North Atlantic Ocean.

ASSET MONETISATION PLAN

Ministry	Target 2021-22	Assets
Railways	₹90,000 cr	50 stations, 150 private passenger trains
Telecom	₹40,000 cr	Telecom assets of BSNL, MTNL and Bharatnet
Road Transport and Highways	₹30,000 cr	Road length of over 7,000 km
Power	₹27,000 cr	Transmission assets of Power Grid
Youth Affairs and Sports	₹20,000 cr	Sports stadia
Civil Aviation	₹20,000 cr	13 airports of AAI. AAI's stake in Delhi, Mumbai, Bangalore and Hyderabad airports
Petroleum & Natural Gas	₹17,000 cr	Pipelines of GAIL, IOCL and HPCL
Shipping, Ports and Waterways	₹4,000 cr	Over 30 berths

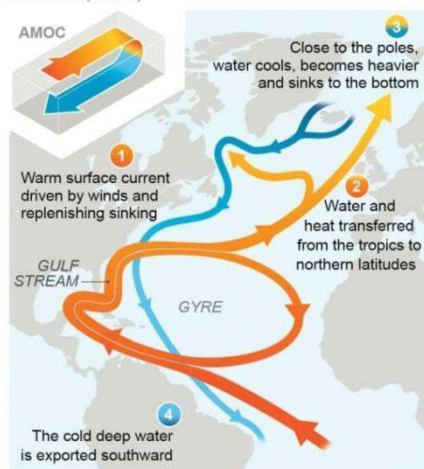
- It transports about 30 billion kilograms of water per second northward past points on the east coast of North America.
- It is a warm current, with temperatures 5°C to 15°C warmer than surrounding waters, so it carries warmer water (thermal energy) from its southern origins and releases warmth to the atmosphere and surrounding water.
- It is a part of two circulation patterns:
 1. Vertical - Atlantic Meridional Overturning Circulation (AMOC)
 2. Horizontal - North Atlantic Subtropical Gyre
- Based on models and theory, scientific studies indicate that, while the AMOC is expected to slow in a warming climate, the Gulf Stream will not change much and would not shut down totally, even if the AMOC did.
- Most climate models project that the AMOC slows in the later 21st century.
- One reason why is freshening of the ocean waters:
 1. by meltwater from Greenland
 2. changing Arctic sea ice
 3. increased precipitation over warmer northern seas.
- The Gulf Stream affects the weather and sea level, so if it slows, North America will see higher sea levels and Europe's weather and rate of relative warming will be affected.

Will the Gulf Stream shut down?

The Gulf Stream, a warm current, is expected to weaken but not cease. This slowdown will affect regional weather and sea level.

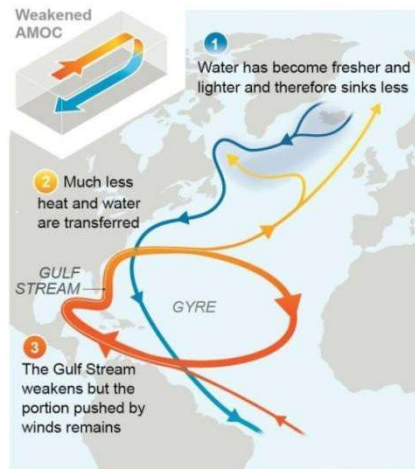
Today

The Gulf Stream is part of both the horizontal, subtropical gyre and the vertical, Atlantic Meridional Overturning Circulation (AMOC)



In a warmer world

Climate change weakens the AMOC, which slows the Gulf Stream down



36. d

Chaff Technology

- Defence Laboratory Jodhpur, a DRDO laboratory has recently developed an advanced Chaff material and chaff cartridge-118/I in collaboration with High Energy Materials Research Laboratory (HEMRL), a Pune based laboratory of DRDO.
- The Indian Air Force has started the process of induction of this technology after completion of successful user trials.

Working of Chaff Technology

- In today's electronic warfare, survivability of fighter aircraft is of prime concern because of advancement in modern radar threats.
- To ensure survivability of aircraft, Counter Measure Dispensing System (CMDS) is used which provides passive jamming against Infra-Red and radar threats.

- Chaff is a critical defence technology used to protect fighter aircraft from hostile radar threats.
- The importance of this technology lies in the fact that very less quantity of chaff material deployed in the air acts as decoy to deflect enemy's missiles for ensuring safety of the fighter aircraft.
- The technology has been given to the industry for production in large quantities to meet the annual rolling requirement of the Indian Air Force.

37. b

In the year 2020-21, coal was mainly imported from:

1. Indonesia (92.535 MT)
2. Australia (54.953 MT)
3. South Africa (31.143 MT)
4. USA (12.204 MT)
5. Russia (6.749 MT)
6. Singapore (4.486 MT)
7. Mozambique (3.570 MT)

38. b

- The Government has recently constituted a Committee headed by Sunil Sethi, Chairman, Fashion Design Council of India (FDCI) New Delhi.
- The main objective of the committee is to suggest the strategy and policy framework for doubling the production and quadrupling the exports of handlooms in a span of 3 years.
- It will also suggest measures for improving the quality of handloom products with the aim of enhancing income of the weavers.

39. b

- The Geological Survey of India (GSI) has identified certain geological sites across the Northeast for promotion of geo-tourism.
- Twelve locations in the Northeast are included in the 32 approved geo-tourism or geo-heritage sites in the country.
- Of the 12 sites in the Northeast, three are in Meghalaya, two each in Assam and Tripura, and one each in Arunachal Pradesh, Manipur, Mizoram, Nagaland and Sikkim.

Mawmluh Cave – Meghalaya

- It is located near Cherrapunjee in the East Khasi Hills district.
- This cave led scientists to the Meghalayan Age.
- **Meghalayan Age** - According to the scientists, when the Meghalayan Age began i.e. 4200 years ago, there was a sudden drought worldwide and the temperature had declined
- A stage of the Meghalayan Age is defined from a specific level in a stalagmite from this cave.

Chabimura – Tripura

- In Gomati district, this site is known for its panels of rock carving on a steep hill wall on the bank of river Gomati.
- The huge images of Shiva, Vishnu, Karthikeya, Durga and other gods and goddesses date back to the 15th-16th century and the biggest carved deity is about 20 ft.
- The hill range is covered with thick jungles and one can reach this abode of gods after trekking through the foliage but rafting or boating on the river is the only option for a view of the rock-face carvings.

Sangetsar Tso – Arunachal Pradesh

- It was popularly known as Madhuri Lake.
- This water body in Tawang district is close to the border with Tibet and was formed due to the damming of a river during a major earthquake in 1950.

- The lake is surrounded by a lush valley and snow-capped mountains.

Loktak Lake – Manipur

- This lake in the Bishnupur district is the largest freshwater lake in the Northeast.
- The attractions of this lake are the 'phumdis' or floating biomass and the 'phumsangs' or huts of fishermen on them.
- The Keibul Lamjao National Park, the only floating wildlife habitat on earth, is on the south-western part of the lake and is the last natural habitat of the sangai or brow-antlered dancing deer.

40. a

Binance

- It is a cryptocurrency exchange that provides a platform for trading various cryptocurrencies.
- The exchange offers a wide range of services to users across the globe, from cryptocurrency spot and derivatives trading to loans and non-fungible tokens.
- It also runs a "decentralised" exchange that allows users to trade directly with each other.
- Its own cryptocurrency, Binance Coin, is the third-biggest in the world, with some \$68 billion-worth in circulation.
- The global financial regulators were concerned over the use of crypto in money laundering.
- They have targeted Binance and some have banned the platform from certain activities, while others have warned consumers that it was unlicensed to operate.
- The platform has said that it would demand stricter background checks on customers to bolster efforts against money laundering, with immediate effect.

41. d

- Union Finance Minister Nirmala Sitharaman has recently launched the Ubharte Sitaare Fund

Ubharte Sitaare Fund

- The fund will aid the micro, small and medium enterprises (MSMEs) which could be future champions with good export potential.
- The fund has been set up by EXIM Bank and SIDBI.
- The fund is expected to identify Indian enterprises with potential advantages by way of technology, products or processes along with export potential, but which are currently underperforming or unable to tap their latent potential to grow.
- The fund is a mix of structured support, both financial and advisory services through investments in equity or equity like instruments, debt (funded and non-funded) and technical assistance (advisory services, grants and soft loans) to the Indian companies.
- The fund will go a long way in making India a major exporting hub.

42. a

Jalakanyaka

- A new marine algae species with an umbrella-like cap, which has been named Jalakanyaka, has been discovered on Andaman & Nicobar Islands.
- The new algae species has been named 'Acetabularia jalakanyakae', after the Sanskrit word 'Jalakanyaka' meaning the 'goddess of oceans' or 'mermaid'.
- This species is the 1st of the genus Acetabularia to be discovered in India.
- It is also the first of its kind on the Island.
- Algal diversity is one of the highest in the Andaman & Nicobar Islands.
- The whole plant is made up of just one cell with only one nucleus.
- Threats - Rising seawater temperature decreases oxygen concentration in water, dangerously affecting all organisms that depend on oxygen to live, including this species.

43. a

Priya

- It is an accessibility booklet developed by NCERT in collaboration with Department of Empowerment of Persons with Disability.
- It aims for ingraining the concept and significance of accessibility in children right from their formative years itself as a move towards inclusive education.

Other initiatives in education sector

- SARTHAQ – A flexible, interactive, indicative and inclusive NEP implementation plan.
- NIPUN Bharat Mission – Mission on Foundational Literacy and Numeracy
- Vidya Pravesh – A three months School Preparation Module
- NISHTHA – Capacity building of Secondary teachers

44. b

India's highest herbal park

- The park is located in Uttarakhand's Chamoli district.
- It is built at a height of 11,000 feet and is adjacent to the famous Badrinath temple in Mana, which is the last Indian village in Chamoli bordering China.
- Its aims conserve various medicinally and culturally important alpine species, and facilitate a study on the propagation of these species, as well as their ecology.
- It contains a dedicated section on –Ashtavarga species, which is a group of eight herbs found in the Himalayas.
- Among the major herbs found in the park, -Brahmakamal (Saussurea Obvallata), state flower of Uttarakhand is also present.
- Interestingly, this flower blooms only one night in a year, and that too, after sunset. It is also called as King of Himalayan Flowers.

45. d

India's First Smog Tower

- It was recently inaugurated in Delhi to purify air in a 1-km radius around the structure.
- The structure is 24 m high with 40 fans in its base which can discharge up to 1,000 cubic metres per second of air from the tower.
- The tower uses a 'downdraft air cleaning system' in which the polluted air is sucked in at a height of 24 m, and filtered air is released at the bottom of the tower, at a height of about 10 m from the ground.
- Inside the tower in two layers are 5,000 filters.
- The 'macro' layer in the filter traps particles of 10 microns and larger, while the 'micro' layer filters smaller particles of around 0.3 microns.
- In China, the updraft system is deployed in which air is sucked in from near the ground and filtered air is released at the top by propelling upwards by heating and convection.

46. c

Children's Climate Risk Index

- It is released by UNICEF for the first time.
- India is among 33 –extremely high risk countries where children are most at risk of climate change affecting their health and education.
- It ranks India at a vulnerable 26th rank and is among 4 South Asian Nations such as Pakistan, Bangladesh and Afghanistan.
- In India, flooding and air pollution is considered as the repeated environmental shocks leading to socio-economic adverse consequences for women and children.

- India's neighbours Nepal is ranked 51st and Sri Lanka 61st. Bhutan is ranked 111th, with children at relatively lower risk.

47. b

SAMRIDH Programme

- Start-up Accelerators of MeitY for pRодукt Innovation, Development and growth (SAMRIDH) programme was launched by the Ministry of Electronics & Information Technology (MeitY).
- SAMRIDH will create a conducive platform to growing Indian Software Product start-ups that are ready for acceleration stage to enhance their products and secure investments for scaling their business.
- It will provide them with funding support, mentorship and other supports that are required by startups at this stage.
- The programme is being implemented by MeitY Start-up Hub (MSH).
- The government has invited existing startup accelerators to partner with and will provide funding of up to Rs.40 lakh to them.
- Only accelerators that have been in the incubation business for at least 3 years and supported more than 50 startups, with at least 10 having a non-public business will be able to apply for the scheme.
- They must also have operations in India and the necessary space and infrastructure to be eligible.

48. c

- The Reserve Bank of India (RBI) constituted an Expert Committee on Primary Urban Co-operative Banks (UCBs) under the chairmanship of N S Vishwanathan.
- The committee has submitted its report recently to the RBI.

Highlights of the report

- **Umbrella Organisation** - The committee suggested setting up an Umbrella Organisation (UO) to oversee co-operative banks.
- UO should be financially strong and be well governed by a professional board and senior management, both of which are fit and proper.
- As an alternative to mandatory consolidation, the Committee preferred smaller banks acquiring scale via the network of the UO.
- **Merger** - The Committee has suggested that the UCBs should be allowed to open more branches if they meet all regulatory requirements.
- If the UCBs don't meet the prudential requirements, the RBI should mandatorily merge or reconstruct the UCBs to resolve them.
- **Four-Tiers** - UCBs may be categorised into 4 tiers for regulatory purposes, based on the banks' cooperativeness, availability of capital and other factors,
 1. **Tier 1** with all unit UCBs and salary earner's UCBs (irrespective of deposit size) and all other UCBs having deposits up to Rs 100 crore,
 2. **Tier 2** with UCBs of deposits between Rs 100 crore - 1,000 crore,
 3. **Tier 3** with UCBs of deposits between Rs 1,000 crore - 10,000 crore
 4. **Tier 4** with UCBs of deposits more than Rs 10,000 crore.
- The Committee has suggested that the minimum Capital to Risk-Weighted Assets Ratio (CRAR) for them could vary from 9% to 15% and for Tier-4 UCBs the Basel III prescribed norms.
- It has also prescribed separate ceilings for home loans, loan against gold ornaments and unsecured loans for different categories of UCBs.
- **Supervisory Action Framework (SAF)** - The SAF should follow a twin-indicator approach instead of triple indicators at
 - present in order to find a time-bound remedy to the financial stress of a bank.
 - So, the asset quality and capital should be measured only through two indicators NNPA and CRAR.

- If a UCB remains under more stringent stages of SAF for a prolonged period, it may have an adverse effect on its operations and may further erode its financial position.

49. c

Re-registration of a vehicle

- Under section 47 of the Motor Vehicles Act, 1988, a person is allowed to keep the vehicle for not more than 12 months in any state other than the state where the vehicle is registered, but a new registration with the new state- registering authority has to be made within the stipulated time of 12 months.
- A passenger vehicle user takes the following steps to re-register a vehicle:
 1. No Objection Certificate from the Parent State for assignment of a new registration mark in another state.
 2. Assignment of new registration mark after the road tax on prorata basis is paid in the new State
 3. Application for refund of the road tax in the parent State on pro rata basis.
- This provision to get refund from the parent State on pro rata basis is a very cumbersome process and varies from one State to another.

BH Series Vehicle Marking

- In order to facilitate seamless transfer of vehicles, the Ministry of Road Transport & Highways has introduced a new registration mark for new vehicles i.e. – Bharat series (BH-series)l.
- This scheme will facilitate free movement of personal vehicles across States/UTs of India upon relocation to a new State/UT.
- A vehicle bearing this registration mark shall not require assignment of a new registration mark when the owner of the vehicle shifts from one State to another.
- This vehicle registration facility will be **available on voluntary basis** to Defense personnel, employees of Central Government/ State Government/ Central/ State Public Sector Undertakings and private sector companies/organizations, which have their offices in **four or more States/Union territories**.
- The motor vehicle tax will be levied for two years or in multiple of two.
- After completion of the fourteenth year, the motor vehicle tax shall be levied annually which shall be half of the amount which was charged earlier for that vehicle.

50.d

Leaded Petrol

- According to UNEP, globally, automotive fuel is completely lead-free now. Not a single fuel outlet sells leaded petrol anymore anywhere.
- Algeria was the last country to use the fuel.
- This feat is achieved after UNEP-led global Partnership for Clean Fuels and Vehicles (PCFV) began its campaign in 2002 to eliminate lead in petrol.
- Fumes from petrol vehicles using leaded petrol have been a significant source of lead exposures which affects multiple body systems and is particularly harmful to young children.
- It affects the brain, liver, kidneys and bones. Lead is measured in blood to understand exposure.
- Lead in bone is released into blood during pregnancy and becomes a source of exposure to the developing fetus.
- It affects emissions control systems of vehicles particularly catalytic converters.
- India started its phase down in 1994 and completed in 2000.
