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Schemes

1) Accelerate Vigyan Scheme

About the Scheme

- 'Accelerate Vigyan' (AV) strives to provide a **big push to high-end scientific research** and prepare scientific manpower which can venture into research careers and knowledge-based economy.
- It aims to initiate and strengthen mechanisms of identifying research potential, mentoring, training and giving hands-on workshops on a national scale.
- The aim of AV is to expand the **research base in the country**, with three broad goals
 1. Consolidation / aggregation of all scientific training programs,
 2. Initiating high-end orientation workshops and
 3. Creating opportunities for research internships.

Components of AV

ABHYAAS

- ABHYAAS programme is an attempt to boost research and development in the country by enabling and grooming potential PG/PhD students by means of developing their research skills in selected areas across different disciplines or fields.
- It has two components: High-end workshops ('**KARYASHALA**') and research internships ('**VRITIKA**').

SAMOOHAN

- Mission 'SAMOOHAN' aims to encourage, aggregate and consolidate all scientific interactions in the country under one common roof. It has 2 components
 1. **SAYONJIKA**- an open-ended program to catalogue the capacity building activities in science and technology.
 2. **SANGOSTI**- is designed to facilitate the scientific community to establish an interaction with other individuals and

research groups to enhance knowledge exchange.

Why in News?

- The **Science and Engineering Research Board (SERB)** has launched a scheme called 'Accelerate Vigyan' (AV).

About SERB

- SERB is a **statutory body** established under the **Department of Science and Technology** to promote and fund research in different scientific disciplines.
- It aims to build up best management systems which would match the best global practices in the area of promotion and funding of basic research.

2) PM-KUSUM Scheme

About the Scheme

- The Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM KUSUM) Scheme was launched in 2019 for **installation of solar pumps and grid connected solar and other renewable power plants** in the country.
- It was launched by the **Ministry of New and Renewable Energy**.
- Under the scheme, farmers are provided subsidies for setting up stand-alone solar pumps and to solarise their grid-connected pump sets.
- This scheme enables farmers to set up solar power generation capacity on their barren lands and to **sell it to the power grid**.
- The Scheme consists of **three components**:
 1. **Component A:** 10,000 MW of Decentralized Ground Mounted Grid Connected Renewable Power Plants of individual plant size up to 2 MW.
 2. **Component B:** Installation of 17.50 lakh standalone Solar Powered

Agriculture Pumps of individual pump capacity up to 7.5 HP.

3. **Component C:** Solarisation of 10 Lakh Grid-connected Agriculture Pumps of individual pump capacity up to 7.5 HP.

Benefits of the Scheme

- The Scheme will have substantial environmental impact in terms of **savings of CO2 emissions**. All three components of the Scheme combined together are likely to result in saving about 27 million tonnes of CO2 emission per annum.
- Further, Component-B of the Scheme on standalone solar pumps may result in **saving of 1.2 billion liters of diesel per annum** and **associated savings in the foreign exchange** due to reduction of import of crude oil.

- The scheme has **direct employment potential**. Besides increasing self-employment the proposal is likely to generate employment opportunities equivalent to 6.31 lakh job years for skilled and unskilled workers.
- In addition, the scheme would provide **additional income to farmers**, by giving them the option to sell additional power to the grid, through solar power projects set up on their barren lands.
- The scheme also reduces the government's burden of **power subsidy in the agriculture sector**.

Why in News?

- The Ministry of New & Renewable Energy issued a fresh advisory against fraudulent websites claiming registration under PM-KUSUM Scheme.

Initiatives

1) RAISE Initiative

What's in the news?

- **Energy Efficiency Services Limited (EESL)** has launched the “Retrofit of Air-conditioning to improve Indoor Air Quality for Safety and Efficiency” (RAISE) programme to **potentially alleviate the issue of bad air quality in workspaces** across the nation and pioneer ways to make them healthier and greener.
- The RAISE initiative focuses on improving indoor air quality, energy efficiency and thermal comfort in the office air conditioning. It is to be extended to government offices after examining its success.
- This is a part of the larger initiative to “Retrofit of Air-conditioning to improve Indoor air quality for Safety and Efficiency” developed for healthy and energy efficient buildings, in partnership with the U.S. Agency for International Development’s (USAID) **MAITREE programme.**

MAITREE

- MAITREE (Market Integration and Transformation Program for Energy Efficiency) program is a part of the **US-India bilateral Partnership** between the Ministry of Power and the USAID.
- It is aimed at accelerating the adoption of cost-effective energy efficiency as a standard practice within buildings, and specifically focuses on cooling.

About EESL

- Energy Efficiency Services Limited is a joint venture under the **Ministry of Power** devoted to implementing energy efficiency programs for the masses.
- Founded in 2009, EESL focuses on solution-driven innovation with no subsidy or capital expenditure.
- It enables consumers, industries and governments to effectively manage

their energy needs through energy efficient technologies.

2) YuWaah

About YuWaah

- **Generation Unlimited**, also called YuWaah in India, is a multi-stakeholder alliance which aims to **facilitate youth to gain relevant skills** for productive lives and the future of work.
- The target age group of YuWaah includes **adolescent girls and boys** and its key mission is to promote access to foundational, transferable and 21st century skills for youth inside and outside formal education systems, which includes defining foundational skills, life skills and flexible learning and identifying and scaling impactful delivery models.
- YuWaah intends to create platforms to guide youth to market opportunities (career guidance, mentorship, internships, apprenticeships) and facilitate integration of career guidance in school education.
- **UNICEF** launched ‘YuWaah’ Generation Unlimited in India in 2019.

Why in News?

- The Ministry of Youth Affairs and Sports signed a Statement of Intent with **YuWaah** to work in partnership **to promote volunteerism among the youth of India** as well as to help them transition from education and learning to productive work, skilling and being active citizens.
- The main aim is to realise the vision of **mobilising 1 crore youth volunteers in India** and **help reap the demographic dividend** with YuWaah’s support.
- India currently has approximately **50% of its population under 25 years** which calls robust focus in education and skill development.

Benefits

- The programme will include collaboration on supporting young people in entrepreneurship, upskilling young people, creating linkages with aspirational socio-economic opportunities.
- It will help in promoting change making and civic participation among young people, providing career guidance support to young people.

3) Manodarpan & KIRAN initiatives

What's in the news?

- The **Minister of Education** has launched the Manodarpan initiative to provide **psycho-social support and counselling to students and teachers for their mental health and wellbeing.**
- Under the initiative, the Ministry launched a toll-free national helpline number (8448440632), a website of Manodarpan and a handbook on 21st century life skills, for the students of school, college and universities.

Significance

- Covid 19 lockdown had led to extended vacation for students and forced close down of schools and colleges. This has created panic among children.
- The initiative would act as an element of strengthening human capital and increasing productivity for the education sector in the wake of Covid-19.

KIRAN Mental Health Rehabilitation Helpline

- Citing the prevalence of mental health issues and the unprecedented nature of the COVID-19 crisis, the **Ministry of Social Justice and Empowerment** has also launched a 24x7 Toll-Free Mental Health Rehabilitation Helpline KIRAN (1800-599-0019).
- The helpline is available in 13 languages to provide relief and support to persons with Mental Illness.

- This Toll Free Helpline is operational 24 hours a day, seven days a week with the Technical Coordination of BSNL.
- It targets to resolve issues of people across the country experiencing stress, anxiety, depression, panic attack, adjustment disorder, post-traumatic stress disorder, substance abuse, suicidal thoughts, pandemic-induced psychological issues and mental health emergencies.

4) Study in India programme

About the programme

- The Study in India programme, a flagship project under the **Ministry of Education**, was launched in 2018.
- This program has been put together to facilitate and encourage the global student community to study in India, which offers a plethora of courses with its top-ranked institutes.
- The programme focuses on attracting International students from select 30 plus countries across South-East Asia, Middle East and Africa.
- The programme envisages participation of select reputed Indian institutes/universities by way of offering seats for the International students at affordable rates, along with fee waivers to meritorious foreign students ranging from 100% to 25%.

Objectives

- To improve the **soft power** of India with focus on the neighbouring countries and use it as a **tool in diplomacy**;
- To double India's market share of **global education exports** from less than 1 percent to 2 percent.
- Improvement in **overall quality** of higher education;
- To reduce the **export-import imbalance** in the number of international students;

Why in News?

- The Ministry of Education conducted the first ever Indian Scholastic

Assessment (Ind-SAT) Test 2020 under its 'Study in India' programme.

- Ind-SAT is held for granting scholarships and admissions to foreign students for studying in select Indian universities under the Study in India programme.

5) National Financial Reporting Authority

About NFRA

- National Financial Reporting Authority (NFRA) was constituted in 2018 under the **Companies Act, 2013**.
- NFRA is an **independent regulator overseeing the auditing profession** and is a part of the **Ministry of Corporate Affairs (MCA)**.
- It has taken over all the powers of Institute of Chartered Accountants of India (ICAI) regarding regulation of auditors.

Functions and powers of NFRA

- Recommend **accounting and auditing policies and standards** to be adopted by companies;
- Monitor and enforce compliance with accounting standards and auditing standards. NFRA has also been given powers to **investigate professional misconduct** committed by members of the ICAI for prescribed class of body corporate or persons.
- NFRA is empowered to **oversee the quality of audit service** and undertake investigation of companies whose securities are listed on any stock exchange in India or abroad.
- Also, it can probe unlisted public companies having paid-up capital of no less than Rs 500 crore or annual turnover of no less than Rs 1,000 crore.

Why in News?

- Audit regulator NFRA has constituted a technical advisory committee (TAC) under the chairmanship of R. Narayanaswamy, Professor, Indian Institute of Management, Bangalore.

- This TAC, which comprises seven members including the chairman, would among other things aid and advise the executive body of the NFRA on issues relating to drafts of accounting standards and auditing standards.

6) Muslim Women Rights Day

What's in the news?

- Union Minority Affairs Minister Mukhtar Abbas Naqvi said August 1 should be recorded as "Muslim Women's Rights Day" in the country as the day mark the anniversary of the passage of the Muslim Women (Protection of Rights on Marriage) Act, 2019.
- The law was enacted to eradicate the regressive social practice.
- The Act made **instant triple talaq (talaq-e-biddat)** pronounced in any form - spoken, written or via electronic means - **illegal and void**.

Provisions of the Muslim Women (Protection of Rights on Marriage) Act, 2019

- **Offence and penalty:** The Act makes declaration of **talaq-e-biddat** a **cognizable offence**, attracting up to three years' imprisonment with a fine. (A cognizable offence is one for which a police officer may arrest an accused person without warrant)
- **Talaq-e-biddat** refers to the practice under Muslim personal laws where pronouncement of the word 'talaq' thrice in one sitting by a Muslim man to his wife results in an instant and irrevocable divorce.
- The offence will be cognizable only if information relating to the offence is given by:
 1. The married woman (against whom talaq has been declared),
 2. Or any person related to her by blood or marriage.
- The Act provides that the Magistrate **may grant bail** to the accused. The bail

may be granted only after hearing the woman (against whom talaq has been pronounced), and if the Magistrate is satisfied that there are reasonable grounds for granting bail.

- The offence may be **compounded** (i.e. the parties may arrive at a compromise) by the Magistrate upon the request of the woman (against whom talaq has been declared).
- **Allowance:** A Muslim woman, against whom talaq has been declared, is entitled to seek subsistence allowance from her husband for herself and for her dependent children. The amount of the allowance will be determined by the Magistrate.
- **Custody:** A Muslim woman, against whom such talaq has been declared, is entitled to seek custody of her minor children.

Special Initiatives and schemes for Women:

- **National Commission for Women:** In 1992, the Government set-up this **statutory body** with a specific mandate to study and monitor all matters relating to the constitutional and legal safeguards provided for women, review the existing legislation to suggest amendments wherever necessary, etc.
- **Reservation for Women in Local Self Government:** The 73rd and 74th Constitutional Amendment Acts ensure one-third of the total seats for women in all elected offices in local bodies whether in rural areas or urban areas.
- **One Stop Centre Scheme:** It is a centrally sponsored scheme which provides for a range of services including police facilitation, medical aid, psycho-social counselling, legal counselling and temporary shelter to women affected by violence in an integrated manner under one roof.
- **Nirbhaya Fund:** A dedicated non-lapsable corpus fund for implementation of initiatives aimed at

enhancing the safety and security of women in the country. The fund is being administered by the **Department of Economic Affairs, Ministry of Finance**. The **Ministry of Women and Child Development (MWCD)** is the nodal Ministry to appraise/recommend proposals and schemes to be funded under Nirbhaya Fund.

- **Protection of Women from Sexual Harassment at Workplace (Prevention, Prohibition and Redressal) Act 2013:** It was passed to facilitate action against any form of sexual harassment at work which would disincentivise women from participating in the economy.
- **Sexual Harassment electronic-Box (She-Box):** An online complaint management system for registering complaints related to sexual harassment at the workplace by women, including government and private employees. Every employer is required to constitute an **Internal Complaints Committee** at each office or branch with **10 or more employees**. The District Officer will constitute a **Local Complaints Committee (LCC)** in every district so as to enable women in the unorganised sector or small establishments to work in an environment free of sexual harassment.
- **Beti Bachao Beti Padhao (BBBP):** It is a tri-ministerial, convergent effort of Ministries of Women and Child Development, Health & Family Welfare and Human Resource Development. The scheme is envisaged to **address the declining Child Sex Ratio** and related issues of women empowerment over a life-cycle continuum. The Pan India Expansion of the scheme covering all 640 districts (as per census 2011) of the country was launched in 2018.

- **Pradhan Mantri Matru Vandana Yojana:** It is a direct benefit transfer (DBT) scheme under which cash benefits are provided to pregnant women in their bank account directly to meet enhanced nutritional needs and partially compensate for wage loss. A conditional **cash benefit of Rs. 5,000** in three instalments is provided for the **first living child of the family**.
- **Janani Suraksha Yojana (JSY):** A safe motherhood intervention under the National Health Mission (NHM) for curbing maternal and neonatal mortality by **promoting institutional deliveries** especially among the pregnant women belonging to weaker socio-economic strata (SC, ST, BPL households).
- **Maternity Benefit (Amendment) Act 2017:** The amendment increased the **duration of paid maternity leave** available for women from 12 weeks to **26 weeks**, introduced an enabling provision relating to **“work from home” for women** and also made **crèche facilities** mandatory for every establishment employing 50 or more employees.
- **Support to Training and Employment Programme for Women (STEP):** STEP has been envisaged to train women with no access to formal skill training facilities, especially in rural India. The initiative reaches out to all Indian women above 16 years of age. The programme imparts skills in several sectors such as agriculture, horticulture, food processing, handlooms, traditional crafts like embroidery, travel and tourism, hospitality, computer and IT services.
- **Stand-Up India:** This scheme facilitates loans between **10 lakh and 1 crore** to **at least one scheduled caste/scheduled tribe and one woman per bank branch** for setting up a greenfield enterprise

(manufacturing, services or the trading sector). In case of non-individual enterprises, at least 51 per cent of the shareholding and controlling stake should be held by either an SC/ST or woman entrepreneur.

- **Rashtriya Mahila Kosh (RMK):** RMK provides micro-credit to women in the informal sector without collateral for income generation activities.
- **Mahila E-Haat:** It is a website which leverages technology for showcasing products made/ manufactured/sold by women entrepreneurs. It provides access to markets for women entrepreneurs across the country.

7) MAUSAM App

What's in the news?

- The **Ministry of Earth Sciences** has launched Mobile App "Mausam" dedicated to the general public designed to **communicate weather information and forecasts in a lucid manner without technical jargons**.
- The app has been designed and developed jointly by **International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)**'s Digital Agriculture & Youth (DAY) team, Indian Institute of Tropical Meteorology (IITM), Pune and **India Meteorological Department**.

About the App

- The app is an important tool for the dissemination of weather information and warnings in a user-friendly and attractive manner.
- The MAUSAM mobile App has the following 5 services:
 1. **Current Weather** - Current temperature, humidity, wind speed and direction for 200 cities updated 8 times a day.
 2. **Nowcast** - Three hourly warnings of localized weather phenomena and their intensity issued for about 800 stations, and districts of India.

3. **City Forecast** - Past 24 hours and 7 day forecast of weather conditions around 450 cities in India.
4. **Warnings** - Alerts issued twice a day for all districts for the next five days in colour code (Red, Orange and Yellow) to warn citizens of approaching dangerous weather. The colour code Red is the most severe category urging authorities to take action, Orange code prompts authorities and public to be alert and Yellow code prompts authorities and public to keep them updated.
5. **Radar products** - Latest Station wise radar products updated every 10 minutes.

About IMD

- The India Meteorological Department was established in 1875 and is the nodal agency under the **Ministry of Earth Sciences** for the weather related services in the country.
- It is the principal agency responsible for meteorological observations, weather forecasting and seismology.
- IMD is headquartered in Delhi and operates hundreds of observation stations across India and Antarctica. Regional offices are at Mumbai, Kolkata, Nagpur and Pune.
- IMD is also **one of the six Regional Specialised Meteorological Centers** of the World Meteorological Organization.

ICRISAT

- It is a non-profit, non-political organization that conducts agricultural research for development in the drylands of Asia and sub-Saharan Africa.
- It is headquartered in Hyderabad, Telangana.

8) NISHTHA

What is it?

- **National Mission to improve Learning Outcomes at the Elementary level-** NISHTHA is a

national initiative for school heads and teachers' holistic advancement.

- It was launched in 2019 by the **Ministry of Education**.
- The basic objective of the training programme is to **build the capacities of around 42 lakh participants** covering all teachers and heads of schools at the elementary level in all Government schools, faculty members of State Councils of Educational Research and Training (SCERTs), District Institutes of Education and Training (DIETs) as well as Block Resource Coordinators and Cluster Resource Coordinators in all States and UTs.
- The aim of this training is to motivate and equip teachers to encourage and foster critical thinking in students, handle diverse situations and act as first level counsellors

What's in the news?

- The Ministry of Education has launched the first on-line NISHTHA programme for 1200 Key Resources Persons of Andhra Pradesh.

9) NATGRID and CCTNS

What is NATGRID?

- NATGRID (or **National Intelligence Grid**) is an attached office under the **Ministry of Home Affairs** which aims to create an online database for collating scattered pieces of information of core security agencies and putting them on one platform.
- The 26/11 attacks on Mumbai led to the exposure of several weaknesses in India's intelligence gathering and action networks.
- The project, initially started in **2009**, is an **online database** for collating scattered pieces of information and putting them together on one platform.
- The NATGRID **links intelligence and investigation agencies**. At least 10 Central government agencies, such as the Intelligence Bureau, Research and

Analysis Wing and others will have access to the data on the secured platform.

- The 10 user agencies will be linked independently with certain databases which will be procured from 21 providing organisations including telecom, tax records, bank, immigration etc. to generate intelligence inputs.
- The **data recovery centre** of the NATGRID has been constructed in **Bengaluru** and its **headquarters** is nearing completion in **Delhi**.

Why in News?

- NATGRID has signed a Memorandum of Understanding (MoU) with the National Crime Records Bureau (NCRB) to access the **Crime and Criminal Tracking Network and Systems (CCTNS) database**.

What is CCTNS?

- Crime and Criminal Tracking Network & Systems is a Mission Mode Project under the **National e-Governance Plan (NeGP)** of Govt. of India.
- CCTNS aims at creating a comprehensive and integrated system for enhancing the efficiency and effective policing at all levels and especially at the Police Station level through adoption of principles of e-Governance.
- CCTNS is intended to ensure that Police maintains all its Crime and Criminals data through an online system and to provide Citizen access to Police Services online and in a hassle free manner.
- All State police are mandated to file First Information Reports (FIR) in the CCTNS.

10) Integrated Disease Surveillance Program

What is it?

- The Integrated Disease Surveillance Program (IDSP) was initiated in India in assistance with the **World Bank**.

- Started in 2004, the scheme aimed to **strengthen disease surveillance for infectious diseases to detect and respond to outbreaks immediately**.
- The IDSP constitutes State Surveillance Units (SSU) at all state/UT headquarters, District Surveillance Units (DSU) at the districts and Central Surveillance Unit (CSU) in Delhi.
- The surveillance data is collected on three specified reporting formats, namely “S” (suspected cases), “P” (presumptive cases) and “L” (laboratory confirmed cases) filled by Health Workers, Clinicians and Laboratory staff respectively.
- State/District Surveillance Units analyses this data weekly, to interpret the disease trends and seasonality of diseases.
- The CSU at the National Centre for Disease Control (NCDC), receives disease outbreak reports from the States/UTs on a weekly basis.

Objective

- To strengthen/maintain **decentralized laboratory-based IT enabled disease surveillance systems** for epidemic-prone diseases to monitor disease trends.
- To **detect and respond to outbreaks in the early rising phase** through trained Rapid Response Teams (RRTs).

Programme Components

- Integration and decentralization of surveillance activities through the establishment of surveillance units at Centre, State and District level.
- Human Resource Development – Training of State Surveillance Officers, District Surveillance Officers, Rapid Response Team and other Medical and Paramedical staff on principles of disease surveillance.
- Use of Information Communication Technology for collection, collation, analysis and dissemination of data.

- Strengthening of public health laboratories.
- Inter sectoral Co-ordination for zoonotic disease

Why in News?

- The Integrated Disease Surveillance Programme has been activated towards COVID response, and is being further strengthened with substantive digital inputs.

11) PRAGYATA Guidelines on Digital Education

What's in the news?

- The **Ministry of Education** has released PRAGYATA guidelines for digital education.
- They are guidelines for online classes operationalized by schools amid the COVID pandemic.
- These guidelines, prepared by the **National Council of Educational Research and Training (NCERT)**, are **advisory** in nature, and State governments have been asked to build on them and formulate their own rules, based on local needs.

About PRAGYATA guidelines

- It is developed from the **perspective of learners, with a focus on online/blended/digital education for students** who are presently at home due to lockdown.
- The guidelines recommend a **cap on the screen time for students**, keeping in mind the overall development of the students with an aim to cut down undue screen time.
- These guidelines on Digital/ Online Education provide a roadmap or pointers for carrying forward online education to enhance the quality of education.
- The guidelines stress upon the **use of an alternative academic calendar** of NCERT, for both, learners having access to digital devices and learners having limited or no access.
- The PRAGYATA guidelines include eight steps of online/ digital learning that is, **Plan- Review- Arrange- Guide- Yak (talk)- Assign- Track- Appreciate**. These steps guide the planning and implementation of digital education step by step with examples.

'PRAGYATA'

GUIDELINES ON DIGITAL EDUCATION
to assist school heads, teachers, parents & students in e-learning

The diagram illustrates the eight steps of the PRAGYATA guidelines, each represented by a colored hexagon arranged in a circular pattern:

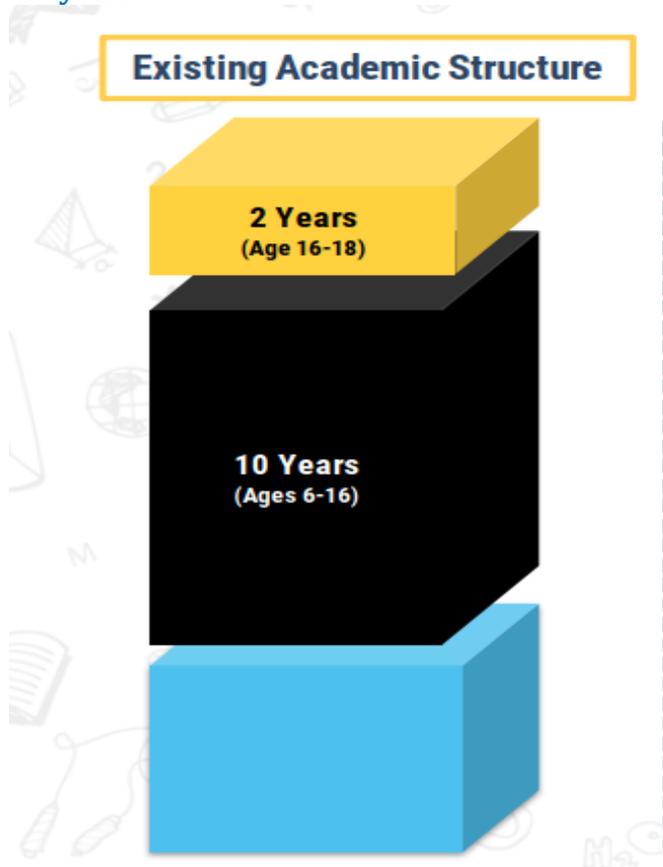
- Plan (Pink)
- Review (Light Green)
- Arrange (Dark Green)
- Guide (Orange)
- Yak (Talk) (Purple)
- Assign (Light Blue)
- Track (Dark Blue)
- Appreciate (Magenta)

Way Forward

- While digital or online education cannot replace classroom learning, it has some advantages. It allows **flexible and personalized learning** at the speed of the learner and one can continuously augment and expand content through digital means.
- The rapid increase in internet penetration and various government initiatives such as the **Digital India campaign** have created a conducive environment for moving towards digital education.
- This shall be complemented by the recent launch of **PM e-Vidya** by the Ministry of Education, a national campaign which will unify all efforts related to digital/online/on-air education.
- *(Refer Pulse June 2020 edition for details on PM e-Vidya programme)*

12) National Education Policy 2020

Why in News?

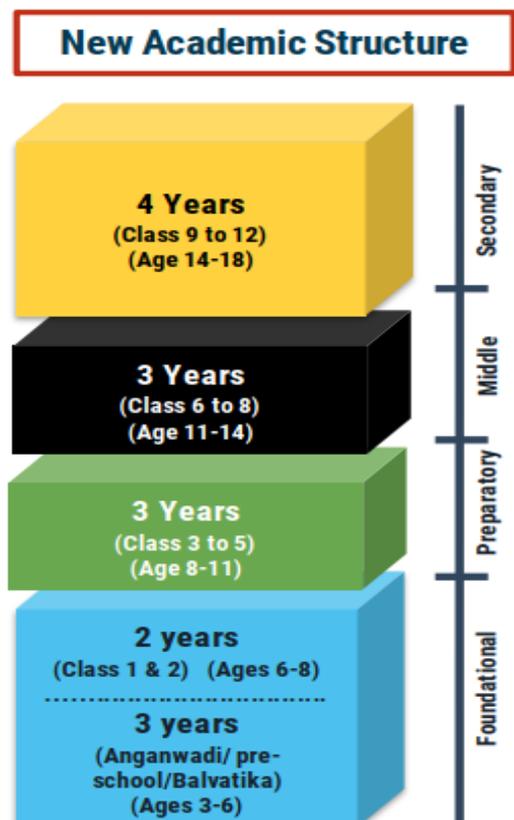


- The Union Cabinet has approved the National Education Policy 2020. The new policy aims to pave way for transformational reforms in school and higher education systems in the country. This policy will replace the 34 year old National Policy on Education (NPE), 1986.
- The policy is based on the pillars of “**access, equity, quality, affordability, accountability**” and will transform India into a vibrant knowledge hub.

Highlights of the Policy

Early Childhood Care & Education

- The current 10+2 system to be replaced by a new **5+3+3+4 curricular structure** corresponding to ages 3-8, 8-11, 11-14, and 14-18 years respectively. This will bring the hitherto uncovered age group of 3-6 years under school curriculum, which has been recognized globally as the crucial stage for development of mental faculties of a child.



- The new system will have **12 years of schooling with three years of Anganwadi/ pre schooling.**
- New Policy aims for **universalization of education from preschool to secondary level with 100 % Gross Enrolment Ratio (GER) in school education by 2030.**
- NEP 2020 will bring 2 crore out of school children back into the mainstream through an open schooling system.

Reforms in school curricula and pedagogy

- The school curricula and pedagogy will aim for holistic development of learners by equipping them with the key 21st century skills, reduction in curricular content to enhance essential learning and critical thinking and greater focus on experiential learning. Students will have increased **flexibility and choice of subjects.**
- There will be no rigid separations between arts and sciences, between curricular and extra-curricular activities, between vocational and academic streams.
- **Vocational education** will start in schools from the 6th grade, and will include internships.
- A new and comprehensive **National Curricular Framework for School Education, NCFSE 2020-21**, will be developed by the NCERT.
- NEP 2020 calls for the setting up of a **National Mission on Foundational Literacy and Numeracy** by the Education Ministry.
- States will prepare an implementation plan for attaining **universal foundational literacy and numeracy in all primary schools for all learners by grade 3 by 2025.**

Medium of instruction

- The policy states, the medium of instruction until at least class 5 (and preferably till class 8) should be **“home language or mother tongue**

or local/regional language”. The policy gives the freedom to the state, region, and child to choose **three languages** to be learned. However, at least two of the three languages should be native Indian languages.

- Assessment reforms with **360 degree Holistic Progress Card, tracking Student Progress for achieving Learning Outcomes.**

NCFTE 2021

- A new and comprehensive National Curriculum Framework for Teacher Education, NCFTE 2021, will be formulated by the National Council for Teacher Education (NCTE) in consultation with NCERT.
- By 2030, the **minimum degree qualification for teaching will be a 4-year integrated B.Ed. degree.**
- Every state/district will be encouraged to establish **"Bal Bhavans"** as a special daytime boarding school, to participate in art-related, career-related, and play-related activities.

Higher Education

- **Gross Enrolment Ratio in higher education to be raised to 50 % by 2035;** 3.5 crore seats to be added in higher education.
- The policy envisages broad based, multi-disciplinary, holistic Undergraduate education with flexible curriculum, creative combinations of subjects, integration of vocational education and multiple entry and exit points with appropriate certification.
- **UG education can be of 3 or 4 years with multiple exit options and appropriate certification within this period.**
- Academic Bank of Credits to be established to facilitate Transfer of Credits.
- **Multidisciplinary Education and Research Universities (MERUs)**, at par with IITs, IIMs, to be set up as models of best multidisciplinary

education of global standards in the country.

- The **National Research Foundation** will be created as an apex body for fostering a strong research culture and building research capacity across higher education.
- A **National Mission for Mentoring** will be established, with a large pool of outstanding senior/retired faculty – including those with the ability to teach in Indian languages – who would be willing to provide short and long-term mentoring/professional support to university/college teachers.

Higher Education Commission of India (HECI)

- HECI will be set up as a single umbrella body for the entire higher education, excluding medical and legal education. Public and private higher education institutions will be governed by the same set of norms for regulation, accreditation and academic standards.
- Also, HECI will be having four independent verticals namely,
 1. National Higher Education Regulatory Council (NHERC) for regulation,
 2. General Education Council (GEC) for standard setting,
 3. Higher Education Grants Council (HEGC) for funding,
 4. National Accreditation Council (NAC) for accreditation.
- **Affiliation of colleges is to be phased out** in 15 years and a stage-wise mechanism is to be established for granting **graded autonomy to colleges**.
- Over a period of time, it is envisaged that every college would develop into either an Autonomous degree-granting College, or a constituent college of a university.
- **Internationalization of education** will be facilitated through both institutional collaborations, and student and faculty mobility and allowing entry of top world ranked

Universities to open campuses in our country.

Others focus areas

- The policy aims to achieve **100% youth and adult literacy**.
- An autonomous body, the **National Educational Technology Forum (NETF)**, will be created to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration.
- NEP 2020 emphasizes setting up of **Gender Inclusion Fund, Special Education Zones for disadvantaged regions** and groups
- A new National Assessment Centre, **PARAKH** (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development), will be set up as a standard-setting body.
- New Policy **promotes Multilingualism** in both schools and higher education.
- **National Institute for Pali, Persian and Prakrit, Indian Institute of Translation and Interpretation** to be set up.
- The Centre and the States will work together to increase the public investment in the **Education sector to reach 6% of GDP at the earliest**.

13) Accredited Social Health Activist

About

- Accredited Social Health Activist (ASHA) is a **trained female community health activist**. Selected from the community itself and accountable to it, the ASHA will be trained to work as an interface between the community and the public health system.

Eligibility criteria for ASHAs

- ASHA must primarily be a woman resident of the village married/ widowed/ divorced, preferably in the age group of 25 to 45 years.

- She should be a **literate woman** with due preference in selection to those who are qualified up to 10 standard wherever they are interested and available in good numbers. However, it may be relaxed under some exceptions.
- ASHA should have effective communication skills with language fluency of the area/population she is expected to cover leadership qualities and be able to reach out to the community.

Functions of ASHA

- ASHA will be the **first port of call for any health related demands of deprived sections** of the population, especially women and children, who find it difficult to access health services.
- ASHA will be a health activist in the community who will **create awareness on health and its social determinants** and mobilise the community towards local health planning and increased utilisation and accountability of the existing health services.
- She would be a **promoter of good health practices** and will also provide a minimum package of curative care as appropriate and feasible for that level and make timely referrals.
- ASHA will **provide information to the community** on determinants of health such as **nutrition, basic sanitation & hygienic practices, healthy living and working conditions**, information on existing health services and the need for timely utilisation of health & family welfare services.
- She **will counsel women on** birth preparedness, importance of safe delivery, breast-feeding and complementary feeding, immunization, contraception and prevention of common infections including Reproductive Tract Infection/Sexually Transmitted Infections (RTIs/STIs) and care of the young child.

- ASHA will **mobilise the community and facilitate them in accessing health and health related services** available at the Anganwadi/sub-centre/primary health centers, such as immunisation, AnteNatal Check-up (ANC), Post Natal Check-up supplementary nutrition, sanitation and other services being provided by the government.

Why in News?

- The government praised ASHAs for giving their selfless commitment to people in the long fight against COVID-19.
- Their contribution includes
 1. Reaching out to households for active surveillance and information dissemination,
 2. Providing care for pregnant women, new-borns and children,
 3. Mobilizing transport to health facilities in cases when ambulances were not available,
 4. Spreading awareness about the symptoms and precautions against covid-19,
 5. Using community trust and knowledge of the local social factors to build confidence among the people to support government efforts in containment and management of covid-19.

14) Financial Inclusion in India

Context

- India began the journey of its financial inclusion as early as in **1955**, with the **nationalisation of Imperial Bank of India** and renaming it as **State Bank of India**. Subsequently, 14 private sector banks in **1969** and 6 banks in **1980** were also nationalised.
- The main objective of nationalisation of banks was to ensure banking activities in those sectors and areas which previously remained neglected.
- The concept of financial inclusion gained momentum after the year 2004

when the RBI set up the **Khan Commission** to make recommendations for greater financial inclusion.

Schemes for Financial Inclusion

Pradhan Mantri Jan Dhan Yojana

- In 2014, the government launched Pradhan Mantri Jan Dhan Yojana (PMJDY) to bring about **comprehensive financial inclusion of all the households** in the country in two phases.
- PMJDY envisages universal access to banking facilities, financial literacy, access to credit, insurance and pension.
- **Benefits under PMJDY**
 - a. Under the scheme, a **basic savings bank deposit (BSBD) account** can be opened in any bank branch or Business Correspondent (Bank Mitra) outlet, by persons not having any other account.
 - b. There is **no requirement to maintain any minimum balance** in PMJDY accounts.
 - c. Interest is earned on the deposit in PMJDY accounts.
 - d. **Rupay Debit card** is provided to PMJDY account holders.
 - e. **Accident Insurance Cover** of Rs.1 lakh (enhanced to Rs. 2 lakh to new PMJDY accounts opened after 28.8.2018) is available with RuPay card issued to the PMJDY account holders.
 - f. An **overdraft (OD) facility** up to Rs. 10,000 to eligible account holders is available.
 - g. PMJDY accounts are eligible for Direct Benefit Transfer (DBT), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Atal Pension Yojana (APY), Micro Units Development & Refinance Agency Bank (MUDRA) scheme.

Jan Dhan-Aadhaar-Mobile (JAM) trinity

- JAM trinity provides a unique opportunity to transfer all benefits and

subsidies of various social welfare schemes in the form of Direct Benefit Transfer (DBT) to the account of beneficiaries and eliminate all the intermediate leakages.

Digital India & Bharat Net

- Digital India was launched in 2015, with a vision to transform India into a digitally empowered society and knowledge economy.
- The overall goal is to bring transformation in the country by **making every household digitally literate** to make India the global knowledge hub with information technology being a major driving force.
- In this context, National Optical Fibre Network, renamed as **Bharat Net** is also an ambitious initiative to trigger high speed broadband network in rural India. The project is implemented by **Bharat Broadband Network Ltd (BBNL)**, a special purpose vehicle set up under the Department of Telecommunications (DoT) in 2012.
- The entire project is being funded by **Universal Service Obligation Fund (USOF)**.
- The BharatNet initiative aims to **connect all the 2.5 lakh Gram Panchayats through high speed broadband optical fibre**.

Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)

- In order to impart digital literacy in the rural areas, in 2017, **PMGDISHA** was launched with the aim to empower at least one person per rural household with crucial digital literacy skills.
- The scheme aims at bridging the rural-urban digital divide, with special emphasis on marginalised sections of society.

Small Finance Banks (SFBs)

- The objective of setting up these banks is to promote financial inclusion in those areas where extending banking

services to the un-served and underserved sections of the population is a challenge to the commercial banks.

- The SFBs are providing banking facilities to small and marginal farmers, small business enterprises, rural artisans, micro and small industries and other unorganised sectors through their modern technology-low cost banking operations.
1. **Note:** SFBs are **subject to all prudential norms and regulations of RBI** as applicable to existing commercial banks including requirement of maintenance of Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR).
 2. They are required to extend **75 per cent of its Adjusted Net Bank Credit (ANBC)** to the sectors eligible for classification as **priority sector lending (PSL)** by the Reserve Bank.
 3. At least 50 per cent of its loan portfolio should constitute loans and advances of upto Rs. 25 lakh.
 4. They are eligible to provide credit card and debit card facilities and associational services.

Towards IT-based financial inclusion

- The conventional practice of opening new branches, to take banking to the doorsteps of customers is becoming redundant day by day. The opening of more branches particularly in rural areas is neither feasible nor viable due to lower clientele per branch.
- With the present network of their branches, commercial banks should give **more impetus to deliver IT-based quality services**. The **information technology-based financial inclusion** should take the place of traditional network-based inclusion.

- The dream of taking banking to the doorsteps of poor and under-privileged customers in remote areas can be realised by adopting information technology enabled solutions facilitating remote banking.

15) ASEEM digital platform

What's in the news?

- In an endeavour to improve the information flow and bridge the demand-supply gap in the skilled workforce market, the **Ministry of Skill Development and Entrepreneurship (MSDE)** has launched 'Atma Nirbhar Skilled Employee Employer Mapping (ASEEM)' portal to **help skilled people find sustainable livelihood opportunities**.
- Apart from recruiting a skilled workforce, the **Artificial Intelligence-based platform** has been envisioned
 1. To strengthen their career pathways by handholding them through their journeys to attain industry-relevant skills and
 2. To explore emerging job opportunities which will help migrant labour, who has been severely impacted by the socio-economic fallout of the covid pandemic.

Benefits

- ASEEM will be used as a **match-making engine to map skilled workers with the jobs available**.
- Through ASEEM, employers, agencies and job aggregators looking for skilled workforce in specific sectors will also have the required details at their fingertips.
- It will also enable policymakers to take a more objective view of various sectors.

Environment

1) Bats

Context

- Bats are revered in many parts of India, but the demand to get rid of them is rising after the coronavirus pandemic as they are believed to be associated with the origin of the virus.
- However, bats are crucial to prevent such events from arising again.

About bats

- Bats are the **largest mammalian group after rodents**, with over 1,300 species making up a quarter of all mammals.
- Bats are the **only mammals capable of true flight**.
- They have a unique **sonar based echolocation** mechanism to capture prey at night. They have the ability to navigate and fly in darkness.
- They occur on **all continents except Antarctica** and are particularly **diverse in South Asia**, with 114 species of insect eating bats and 14 fruit bats, also known as “flying foxes”, occurring in India.
- They play a unique role in **maintaining ecosystem structure**, making a singular contribution to our food production, economy and well-being.

Boon for agriculture

- Bats are long-distance dispersers often their feeding ranges up to 20km from their roosting sites. The diet of fruit-eating bats consists largely of flowers and fruits, they play a vital role in **seed dispersal and forest regeneration**.
- Bats play a vital role in pollination, mainly of large flowered plants, and in crop protection. Nectar-feeding bats are **major pollinators** for 528 species of ecologically and economically important plants.
- Insectivorous bats, which make up 70 percent of all bat species, are voracious **predators of nocturnal insects and**

crop pests, thus their diversity contributes directly to enhancing crop productivity with tremendous economic impact.

- Bats contribute significantly to **soil fertility and nutrient distribution** due to their large numbers, high mobility and varied habitats for roosting and foraging. Bat guano (droppings) provides organic input to soil and facilitates nutrient transfer, contributing to soil fertility and agricultural productivity.
- Several species of bats contribute to human health by **reducing populations of mosquitoes** and other insect vectors that spread malaria, dengue, chikungunya and other diseases.

Why are bats persecuted?

- Their unique body shape, behaviour of hanging upside down, communal roosting and nocturnal habits have given rise to **baseless myths** and created unfounded fears leading to their persecution.
- The fears have become exacerbated since the covid-19 pandemic.

How bats transmit viruses?

- Bats originated in the **early Eocene period** of the Earth's history, around 52 million years ago. During this long evolution, their bodies have gained **resistance to viruses** and other microbes. This immunity derived through coexistence has helped them safely live with pathogens.
- Viruses **don't jump directly from bats or other animals to humans**.
- **Illicit trade in wildlife**, high levels of **hunting of bats** for consumption of wild meat, and **destruction of natural habitats** is responsible for this pandemic by bringing host animals into close contact with humans and amplifying the risks of spillovers.

Way forward

- The pandemic has demonstrated that conservation of biodiversity and natural habitats is absolutely essential to prevent such events from arising again. Hence, **killing or harming bats diminishes the critical ecological services that they perform for us.**
- Instead avoid eating fruits partially eaten by bats and do not venture into caves and closed spaces laden with bat excreta to minimise risks of cross-contamination.

2) Dehing Patkai Wildlife Sanctuary

National Parks and wildlife sanctuaries

- Wildlife sanctuaries and National Parks are areas of significant ecological, floral, faunal or natural significance.
- They are **notified by State Governments** after consultation with the **State Board for Wildlife.**
- The **Central Government can also declare** a sanctuary anywhere in India after consultation with the National Board for Wildlife.
- They are protected under the provisions of the **Wildlife (Protection) Act, 1972.**
- While most of the provisions are common for Sanctuaries and National Parks, there are **three key differences:**
 1. People within a National Park are not allowed to live, while in a Sanctuary **certain rights** can be allowed.
 2. **Livestock grazing** is prohibited in a National Park but can be allowed in a regulated manner in Sanctuaries
 3. A Sanctuary can be upgraded to a National Park but a National Park cannot be downgraded as a Sanctuary.

Dehing Patkai Wildlife Sanctuary

- It is located in **Assam.**
- Dehing is the name of the river that flows through the reserve and Patkai is the hill at the foot of which the sanctuary lies.

- The Reserve consists of wet tropical evergreen Assam valley forests. It is often referred to as "**The Amazon of the east**" owing to its large area and thick forests.
- Apart from the fact that is a contiguous patch of rainforest, it is also the place with the highest concentration of the rare endangered **White Winged Wood Duck** can be found.
- The Dehing Patkai Forest is one of the most important forests of Assam in terms of **orchid diversity.** So far, 101 species of orchids within 45 genera have been recorded there.

Why in the news?

- The Assam government has decided to upgrade Dehing Patkai Wildlife Sanctuary into a **national park.**
- The announcement comes just months after the **National Board of Wildlife's (NBWL)** conditional clearance to a coal mining project by Coal India Limited (CIL) in the Dehing Patkai Elephant Reserve sparked a spate of virtual protests in the state.
- Post upgradation, Dehing Patkai will be the sixth national park in Assam — the other five being **Kaziranga, Nameri, Manas, Orang and Dibru-Saikhowa.**

National Board for Wildlife

- NBWL is constituted by the Central Government under the **Wildlife (Protection) Act, 1972.** The NBWL is under the Ministry of Environment, Forest and Climate Change (MoEFCC).
- The role is "**advisory**" in nature and advises the Central Government on framing policies and measures for conservation of wildlife in the country.
- Primary function of the Board is to promote the conservation and development of wildlife and forests. NBWL has power to review all wildlife-related matters and approve projects in and around national parks and sanctuaries.
- The National Board for Wildlife has 47 members with the **Prime Minister in**

the Chair. The Minister in charge of the Ministry of Environment & Forests in the Central Government is the Vice-Chairperson.

- The **standing committee of NBWL** is chaired by the **Minister of Environment, Forest and Climate Change**.
- Recommendation of the NBWL is **mandatory for alteration of the boundary of a protected area** such as National Park, Wildlife sanctuary, Tiger reserve, etc.

3) Central Zoo Authority

About CZA

- The Central Zoo Authority (CZA) is a **statutory body** under the **Ministry of Environment, Forest and Climate Change** established in 1992 under the **Wildlife (Protection) Act, 1972**.
- The Authority consists of a Chairman, ten members and a Member Secretary. It is chaired by the **Minister-in-charge of the Environment Ministry**.
- The main objective is to strengthen the national effort in conservation of the rich biodiversity of the country, particularly the fauna as per the **National Zoo Policy, 1998**.
- Other objectives of this Authority include- enforcing minimum standards and norms for upkeep and healthcare of animals in Indian zoos and to control mushrooming of unplanned and ill-conceived zoos.
- The authority lays down guidelines and prescribes rules under which animals may be transferred among zoos nationally and internationally.

Why in the news?

- The Ministry of Environment, Forest and Climate Change has **expanded the Central Zoo Authority** to include an expert from the School of Planning and Architecture, Delhi, and a molecular biologist.

4) Kaziranga National Park and annual flood

About Kaziranga National Park

- Formed in 1908 on the recommendation of Mary Curzon (wife of Lord Curzon), the Kaziranga national park is located in **Assam**.
- In the year 1985, the park was declared as a **World Heritage Site by UNESCO**.
- Kaziranga was declared as **Tiger Reserve** in 2006 and it is also recognised as an **Important Bird Area** by Birdlife International for conservation of avifaunal organisms.
- In the park one can see **four types of vegetation** like alluvial inundated grasslands, alluvial savanna woodlands, tropical moist mixed deciduous forests, and tropical semi-evergreen forests.
- The park is famous for its **One-horned Rhinoceros**; about 2200 rhinoceros exist in this park, which is **half of the world's one-horned rhino population**.
- The park also harbours significant populations of other threatened species including tigers, elephants, wild water buffalo and bears as well as aquatic species including the Ganges River dolphin.
- **River Brahmaputra** flows adjacent to the park. River fluctuations by the Brahmaputra system result in spectacular examples of riverine and fluvial processes.

Why in the news?

- Kaziranga National Park faced severe floods in the month of July resulting in the death of more than 100 wild animals, which includes 8 one-horned rhinoceros.

Importance of annual floods

- However, floods in the park are an **annual necessity to maintain the ecosystem of the park**.
- In the following ways the floods help national park :

- Since Kaziranga park itself is a **floodplain ecosystem**, water is essential to maintain its character.
- Floodwaters also function as a **breeding ground for fish** and help in replenishing the Brahmaputra River's fish livestock.
- Floods act as **natural selection** to eliminate the old and weak animals.

What needs to be done?

- Floods intensity is increasing year by year; hence proper steps need to be taken to mitigate the effects.
- The solution lies in **securing animal corridors** and **ensuring safe passage to the Karbi hills** which is a highland refuge for animals during floods.

Additional Details

Biodiversity Hotspots

- Biodiversity hotspots are regions with **high species richness** and a **high degree of endemism**.
- The concept of biodiversity hotspots was developed by **Norman Myers** in 1988.
- To qualify as hotspot a region should contain
- It must have **at least 1,500 vascular plants as endemics** — which is to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable.
- It must have **30% or less of its original natural vegetation**. In other words, it must be threatened.
- **Conservation International (CI)**, an American based Non-Governmental Organisation, founded in 1987 with the goal of protecting nature for the benefit of people.
- In 1989, CI formally committed to the protection of biodiversity hotspots around the world. It identified **36 biodiversity hotspots** so far.
- They represent just **2.4% of Earth's land surface**, but they support more than half of the world's plant species as endemics — i.e., species found no place

else — and **nearly 43% of bird, mammal, reptile and amphibian species** as endemics.

- India hosts 4 biodiversity hotspots: **the Himalayas, the Western Ghats and Srilanka, the Indo-Burma region and the Sundaland (Nicobar Islands and Others)**.

5) Environment Impact Assessment

Background

- The United Nations hosted its first Conference on the Human Environment in Stockholm, 1972 which resulted in the **Stockholm Declaration of 1972**. The declaration emphasizes to lessen air, land, and water pollution and human impact on the environment.
- India enacted laws to control water (1974) and air (1981) pollution soon after.
- India legislated an umbrella act for environmental protection (**Environmental Protection Act**) in **1986** after the Bhopal gas leak disaster in 1984.
- India notified **Environment Impact Assessment (EIA) Norms in 1994** under Environmental Protection Act, 1986.

About EIA

- Environment Impact Assessment or EIA can be **defined as the study to predict the effect of a proposed activity/project on the environment**.
- Every development project has been required to go through the EIA process for obtaining prior environmental clearance.

EIA Process

- **Screening:** Determines whether the proposed project requires an EIA.
- **Scoping:** This stage identifies the key issues and impacts that should be further investigated.
- **Impact analysis:** This stage of EIA identifies and predicts the likely

environmental and social impact of the proposed project and evaluates the significance.

- **Mitigation:** This step in EIA recommends the actions to reduce and avoid the potential adverse environmental consequences of development activities.
- **Reporting:** This stage presents the result of EIA in a form of a report to the decision-making body and other interested parties.
- **Review of EIA:** It examines the adequacy and effectiveness of the EIA report and provides the information necessary for decision-making.
- **Public hearing:** This provides a legal space for people of an area to come face-to-face with the project proponent and the government and express their concerns.
- **Decision-making:** It decides whether the project is rejected, approved or needs further change.
- **Post monitoring:** This stage comes into play once the project is commissioned. It checks to ensure that the impacts of the project do not exceed the legal standards and implementation of the mitigation measures are in the manner as described in the EIA report.

Shortcomings of EIA Process

- Several projects with significant environmental impacts are **exempted** citing lesser investments conditions.
- Team formed for conducting EIA studies is **lacking the expertise**.
- **Public comments** are not considered at an early stage.
- **Lack of Quality and Credibility** of EIA.
- **Strong political and bureaucratic stronghold** on the EIA process.

2006 Modification

- The 1994 EIA notification was replaced with a **modified draft in 2006** by reducing the number of stages in EIA.

- The EIA Notification, 2006, broadly divides all projects into two categories—**Category A and Category B**—based on potential impacts over an area and on human health and natural and man-made resources.
- All Category A projects (with potentially significant impacts) are required to carry out an EIA and undertake a public hearing before an Environmental Clearance (EC) may be granted by the **Union environment ministry**. Category B projects (with potentially less significant impacts) are evaluated and given a clearance by state level authorities, the **State Environment Impact Assessment Authority (SEIAA)** and **State Expert Appraisal Committee (SEAC)**.
- Further, projects under **Category B1** also require an EIA and public consultation, but those falling under **Category B2** are exempted from requirements of both EIA and public consultation.
- The 2006 notification also provided for the establishment of the **District Environment Impact Assessment Authority (DEIAA)** and **District Expert Appraisal Committee (DEAC)** to evaluate EC proposals for small-scale leases for minor minerals, where the size of the cluster is greater than five hectares but less than 25 hectares, with no individual lease being more than five hectares.

2020 Draft notification

- The Ministry of Environment, Forest and Climate Change (MoEF&CC) has published the draft Environment Impact Assessment Notification 2020, with the intention of replacing the existing EIA Notification, 2006 under the Environment (Protection) Act, 1986.
- An important feature of the draft notification is that the **process of approval has been simplified**. A project will now be cleared by an

approved **standing committee** that includes experienced experts.

Issues

- The 2020 draft permits **post facto regularisation of environmental violations** by paying fines so long as the project is permissible in the area. This shift from the 'polluter-pays-principle' to the 'pollute-and-pay' principle would wreak havoc.
- No information on projects concerning **national defence and security** shall be placed in the public domain. This opens a window for summary clearance for any project deemed strategic without having to explain why.
- The new draft removed several activities from the **purview of public consultation**. A list of projects has been included under Category B2, expressly exempted from the requirement of an EIA.
- Moreover, the **notice period for public hearing** has been cut from 30 days to 20 days. This will make it difficult to study the draft EIA report, more so when it is not widely available or provided in the regional language.
- Additionally, the new draft exempts a long list of projects from public consultation. For example, **projects such as roads and pipelines in border areas** will not require any public hearing. The 'border area' is defined as "area falling within **100 kilometres aerial distance from the Line of Actual Control** with bordering countries of India." That would **cover much of the Northeast, the repository of the country's richest biodiversity**.
- **Exempts most building construction projects** of built-up area up to **1,50,000 sq m**.

Why in News?

- The Delhi High Court extended the time for giving suggestions to the draft

Environment Impact Assessment notification of 2020.

6) New rules to regulate exotic animal trade

Exotic species

- Exotic species, often referred to as alien, non-native, nonindigenous, or introduced species, are those that occur in areas outside of their natural geographic range.
- The presence of an exotic species may have a significant effect on the local ecosystem. The ecological impact varies; it may **generally bring adverse effects to the ecological balance** in an ecosystem or it may be beneficial.
- Exotic species can result in **habitat modifications** that may reduce native species abundance and restructure communities.
- At other times, the effect is not too significant to cause major changes in the ecosystem.

Why in News?

- The Environment Ministry's wildlife division has introduced new rules to regulate the import and export of exotic wildlife species.
- Currently, it is the **Directorate-General of Foreign Trade**, Ministry of Commerce, that oversees such trade. Under the new rules, owners and possessors of such animals and birds must also **register their stock with the Chief Wildlife Warden of their States**.

Exotic wildlife species

- As per the new rules, exotic wildlife species will mean animals named under **Appendices I, II and III of the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora**.
- It will **not include species from the Schedules of the Wild Life (Protection) Act, 1972**.

Significance

- According to **World Wildlife Crime Report 2016** of the UN, criminals are illegally trading products derived from over 7,000 species of wild animals and plants across the world.
- In its **Money Laundering and the Illegal Wildlife Trade** report, the Financial Action Task Force (FATF) described wildlife trafficking as a “global threat”, which also has links with other organised crimes such as modern slavery, drug trafficking and arms trade.
- The illegal trade is estimated to generate revenues of up to \$23 billion a year.

Convention on Illegal Trade in Endangered Species (CITES)

- It is an international agreement aimed at ensuring that international trade in specimens of wild animals and plants does not threaten their survival.
- The treaty entered into force in 1975 and now has 183 Parties (including **India**). It is also referred to as the **Washington Convention**.
- It is legally binding on the Parties, but it does not take the place of national laws of parties. States have to adopt their own **domestic legislation** to implement its goals.
- It is administered through the **United Nations Environment Programme (UNEP)**, Geneva, Switzerland.
- The species covered by CITES are listed in **three Appendices**, according to the degree of protection they need.

Appendix I:

- Most endangered plants and animals. Examples include gorillas, giant pandas etc.
- They are threatened with extinction and CITES prohibits international trade in specimens of these species except when the purpose of the import is **not commercial**, for instance for scientific research.

Appendix II:

- Not necessarily now threatened with extinction but that may become so unless trade is closely controlled. Most CITES species are listed in this Appendix.
- It also includes "**look-alike species**", i.e. species whose specimens in trade look like those of species listed for conservation reasons.
- International trade in specimens of Appendix-II species may be authorized by the granting of an export permit or re-export certificate.

Appendix III

- List of species that are included at the request of a party.
- Trade is allowed with the presentation of documents.

7) Nagarhole national park

About

- Nagarhole National Park, also known as Rajiv Gandhi National Park, is located in the two districts of **Karnataka**, namely Mysore and Kodagu.
- The park was established as a wildlife sanctuary in 1955 and was upgraded into a national park in 1988. In 1999, it was declared as a tiger reserve.
- **River Kabini** revolves around the park creating an aqueous edge with the **Bandipur National Park**. It forms a **part of the Nilgiri Biosphere Reserve**.
- The vegetation in this park predominantly comprises moist, tropical and mixed deciduous forest, with some portions being the dry deciduous type.
- Nagarhole National Park forms a **part of the Nilgiri Biosphere Reserve** and together with **Bandipur National Park and Mudumalai Wildlife Sanctuary** to its South East and **Wayanad** to the South-West, is one of the last remaining and best protected habitats for endangered species like the Elephant and the Tiger.

Why in the news?

- The Karnataka Forest Department plans to introduce a time-stamped card system for vehicles along the roads adjacent to Nagarhole National Park to ensure better compliance of forest laws by motorists and minimise road kills.
- It will help ensure that motorists don't stop midway and litter the area or cause disturbance to wildlife.

8) Nagarjunasagar Srisailem Tiger Reserve (NSTR)

About

- It is the **largest tiger reserve** in India.
- Situated in the **deciduous Nallamala forests**, NSTR spreads across 5 districts, some belonging to **Telangana state** and **Andhra Pradesh state**.
- These forests are also famous for **Srisailem temple** which is one of the prominent Lord Shiva temples.
- **River Krishna** flows over a distance of 130 km through the Reserve. The **multipurpose reservoirs, Srisailem and Nagarjunasagar**, which are an important source of irrigation and power for Andhra Pradesh, are located within the Tiger Reserve.
- The area receives rainfall from both the southwest and northeast monsoons.

Why in the news?

- The tiger population in NSTR has seen a promising rise in number.
- According to the recent tiger census by the **Wildlife Institute of India** and the **National Tiger Conservation Authority**, the reserve accounts 74 tigers in total.
- With the limited resources in hand, the forest department, the local tribes, and NGOs have made this possible.
- Steps like active surveillance by using sensor-based camera traps and ensuring 24X7 patrolling by the personnel has yielded the rise in tiger population.

Wildlife Institute of India

- Wildlife Institute of India (WII) was established in 1982 as an autonomous institute of the **Ministry of Environment, Forest & Climate Change (MoEF&CC)**.
- Its primary mandates are to:
 1. Carry out scientific and applied research on various issues of wildlife and biodiversity conservation,
 2. Build capacity in the field of wildlife management and conservation planning,
 3. Provide technical inputs to MoEF&CC and other stakeholders.
- WII helps in conducting Tiger Census every four years along with the National Tiger Conservation Authority (NTCA).
- WII is headquartered at **Dehradun, Uttarakhand**.

About NTCA

- National Tiger Conservation Authority is a **statutory body** under the **MoEF&CC**.
- It performs functions as provided in the **Wildlife (Protection) Act, 1972**.
- It is chaired by the Minister in charge of the **MoEF&CC**.

9) International Tiger Day

What's in the news?

- July 29th is celebrated as Global/international tiger day every-year. It is celebrated to signify the conservation of tigers and their importance in biodiversity.
- It has been celebrated since its declaration at **St. Petersburg Tiger Summit** in 2010.

Tigers

- The tiger is classified into **nine subspecies**, three of which (Javan, Caspian, and Bali) are extinct. A fourth, the South-China subspecies, is most likely extinct in the wild, with no signs of its existence in the last decade. The existing subspecies are **Bengal**,

Indochinese, Sumatran, Siberian, and Malayan.

- Tigers are globally listed as “**Endangered**” on the IUCN Red List of Threatened Species. The Malayan and Sumatran sub-species are listed as “**Critically Endangered.**”
- Tigers are found mainly in the forests of tropical Asia, although they historically occurred more widely in drier and colder climes. Some species are also found in cold regions (Siberian Tigers of Russia) as well as marshy lands (Bengal tigers in Sundarbans).
- Tiger has been protected under **Appendix I** of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1975 which means commercial international trade in tiger is prohibited.

St. Petersburg Tiger Summit

- It was the first global summit to protect tigers from extinction. It was hosted in 2010.
- 13 tiger range countries namely **India, Laos, China, Vietnam, Russia, Nepal, Bhutan, Myanmar, Cambodia, Indonesia, Bangladesh, Thailand and Malaysia** participated in this event.
- They adopted a **Global Tiger Recovery Program** with the aim of **Tx2- doubling the number of wild Tigers by 2022**, through combating threats, engaging with local

communities and improving tiger habitat management.

- It also encourages trans-boundary collaboration between countries for tiger conservation.
- **Note:** According to the **All India Tiger Estimation Report 2018**, India has achieved its target of doubling the number of tigers two years before the committed date of 2022. The tiger population in India now stands at almost 2,970 tigers.

Why Tigers are important for India?

- India today is home to 70 per cent of the world's tiger population.
- Tigers are **indicators of the ecological wellness of planet earth**. Being the dominant predators of the ecosystem, they **ensure that the numbers of herbivores like deer are kept balanced**. A steep fall in tiger population could lead to a rise in herbivore population, which could potentially destroy forests by consuming the trees and plants.
- **Madhya Pradesh** hosts most of the tigers as a state while **Jim Corbett National Park in Uttarakhand** houses the most number of tigers in any protected area.
- India started **Project Tiger** in 1973 with 9 Tiger reserves in the country and today we have 50 tiger reserves in the country.

Project Tiger



- Project Tiger is a **Centrally Sponsored Scheme** of Government of India which was launched in 1973 for in-situ conservation of wild tigers in designated tiger reserves.
- Broadly, the strategy involves exclusive tiger agenda in the **core/critical tiger habitat**, inclusive people-wildlife agenda in the **outer buffer**, besides fostering the latter agenda in the corridors.
- This strategy is reflected in a tiger reserve specific **Tiger Conservation Plan** for each reserve prepared under the **Wildlife (Protection) Act, 1972**.
- The initiative is administered under the Ministry of Environment, Forests and Climate Change (MoEFCC). **National Tiger Conservation**

Authority is the immediate supervising agency.

- It was launched from the **Jim Corbett National Park** of Uttarakhand.
- At present, there are a total of 50 Tiger Reserves in India governed by Project Tiger.

Major Challenges for conservation of species in the long run

- The present tiger reserves might not be able to conserve the species in the long run because there is a **need for more corridors rather for the exchange of Gene pool**.
- Out of 50 tiger reserves in India, nearly 17 are approaching the peak of their capacity at sustaining tiger populations.
- In today's scenario, human-animal conflict is increasing day-by-day and

the major reason lies in **fragmentation or shrinking of habitat.**

- Due to **illegal poaching** and illegal markets, there is grave danger for the tiger species.
- A recent survey has found that **one-third of tigers live outside the tiger reserves.**
- The **inter-connectivity of Tiger reserves is very poor** due to which the translocation of tigers is difficult.

Way Forward

- There is a need to **shift the focus from the Tiger reserves towards the network areas of tigers** through which man-animal conflict can be avoided.

- The most dominant factor like **Climate change** needs to be taken into account while framing our development as well as conservation strategy. Eg: Recently, a tiger was found in sikkim where it was never found before.
- **Eco-tourism** is making a way for tigers to get habituated with people and hence it needs to be promoted.
- Even though we have achieved a significant increase in tiger population there is a lot which needs to be done to conserve the flagship species as the country is more vulnerable to the dynamic climate.

Flora and Fauna

1) Woolly whitefly

About Woolly whitefly



- The woolly whitefly (*Aleurothrix floccosus*) is a **pest that is invasive** (tending to spread very quickly and harmful) and **polyphagous** (a creature that feeds on various kinds of food).
- Adult woolly whiteflies may live as long as 24 days. It is found across the warmer parts of the world.
- Woolly whiteflies suck phloem sap, causing leaves to wilt and drop when populations are large.
- Their infection reduces photosynthesis, resulting in decreased fruit size. It has been found to attack some 20 plant families in India, exhibiting a strong preference for guava.
- This insect has spread from the Caribbean islands to India through transportation of infested seedlings.

Ladybird beetles and Green Lacewing



- (figure 1) Lady beetles, ladybugs, or ladybird beetles are among the most visible and best known **beneficial predatory insects**.
- Most lady beetles are beneficial as both adults and larvae, feeding primarily on aphids. They also feed on mites, small insects, and insect eggs.
- (figure 2) Green lacewings are an often under-appreciated group of **beneficial insects**. As with lady beetles, these natural enemies are important predators of many types of soft bodied insects and insect eggs.
- The adults feed mostly on nectar, pollen, and honeydew but with some species the adults will feed on insects.

Why in the news?

- Entomologists have found Lady bird and Green lacewing bugs feeding on woolly whitefly in a guava orchard near Coimbatore.
- It is found that a tiny predator can eat 200-300 woolly whiteflies throughout its growing stage.
- According to the Indian Council of Agricultural Research (ICAR), Indian crops get 30-35% damage due to pests annually. Finding like this will **help farmers to improve techniques on management of pests**.

Agriculture

1) Direct Seeding of Rice

Context

- In the prevailing situation of lockdown over many states to prevent the spread of COVID-19, farmers are being encouraged to use direct seeding of

Rice instead of conventional paddy transplantation to cope up with labor shortage.

Direct Seeding of Rice vs Conventional transplanting

	Conventional transplanting	Direct Seeding of Rice
Method of transplanting paddy	<ul style="list-style-type: none"> Farmers prepare nurseries where the paddy seeds are first sown and raised into young plants. These seedlings are then uprooted and replanted 25-35 days later in the main field. The nursery seed bed is 5-10% of the area to be transplanted. 	<ul style="list-style-type: none"> There is no nursery preparation or transplantation. The seeds are instead directly drilled into the field by a tractor-powered machine.
Irrigation frequency	<ul style="list-style-type: none"> For the first three weeks after transplanting, the plants have to be irrigated almost daily (if there are no rains) to maintain a water depth of 4-5 cm. 	<ul style="list-style-type: none"> Farmers have to only level their land and give one pre-sowing irrigation. Irrigation (apart from the pre-sowing irrigation) is necessary only 21 days after sowing. DSR can help reduce water consumption by as much as 35 per cent.
Herbicide	<ul style="list-style-type: none"> Water acts as a herbicide for paddy. <p>Underlying Principle:</p> <ul style="list-style-type: none"> Paddy growth is compromised by weeds that compete for nutrition, sunlight and water. Water prevents growth of weeds by denying them oxygen in the submerged stage, whereas the soft 'aerenchyma tissues' in paddy plants allow air to penetrate through their roots. 	<ul style="list-style-type: none"> Water is replaced by real chemical herbicides. <p>About herbicides:</p> <ul style="list-style-type: none"> Two kinds of herbicides are used. Pre-emergent: applied before germination. Eg. Pendimethalin Post-emergent: sprayed 20-25 days after sowing, depending upon the type of weeds appearing. Eg. Bispyribac-sodium Fenoxaprop-p-ethyl

Advantages of DSR

Helps overcome labour shortage

- In the present context of COVID-19 lockdown, many states could face a shortage of labourers to undertake transplantation of paddy in the upcoming kharif season.
- This problem can be overcome with the use of direct seeding technique.

Herbicide cost still less than labour cost

- Though the purchase of herbicide incurs some cost, this is still lower than the cost paid out for labours.

Emission reduction

- The transplanting technique being a major source of **methane**, those emissions were reduced by **6 per cent to 92 per cent** in the DSR method.

Drawbacks of DSR

- The **seed requirement for DSR is higher**, at 8-10 kg/acre, compared to 4-5 kg in transplanting.
- It is doubtful that the **demand for herbicides** will be met.
- **Laser land levelling costs** of around Rs 1,000/acre is mandatory for DSR.
- Though DSR has certain disadvantages, it can be considered as an effective alternative in the current scenario.

2) Paddy puzzle

Context

- As the Haryana government once again attempts to **curb areas under paddy to save groundwater**, farmers point out flaws in its efforts.
- After encouraging farmers to grow paddy for more than 50 years since the Green Revolution, the government now **wants them to shift to other crops**.

Why should we shift from paddy?

- Paddy, being a **water intensive crop**, is responsible for the rapid decline in groundwater across the state. Between 1966-67 and 2018-19, the **area under paddy** across Haryana has **increased by 654 percent** which is comparatively much higher than the area under wheat, oilseeds and

foodgrains, according to the Economic Survey of Haryana 2019-20.

- During the same period, between 1974 and 2018, the state reported an **average water table drop of 10 metres**.

Government's reason for push

- Haryana's groundwater depletion rate is among the **highest** in the country. Of the 128 blocks, **80% are overexploited, critical or semi-critical**.
- Most farmers in the state grow **non-basmati paddy**, a water-guzzler.
- **Irrigation water productivity** of paddy in the state is 1.2 kg/m³, **lowest** in the country.
- Paddy crop residue is linked to **stubble burning**.

Government initiatives

- For the past two years, the government has been announcing various schemes to encourage farmers in paddy-rich areas to grow less water-consuming crops like maize and pulses.

Jal Hi Jeevan Hai Scheme

- The state launched the **Jal Hi Jeevan Hai scheme** on a pilot basis in seven blocks where the water table dropped by 12 m between 1999 and 2018.
- The aim was to **wean off 50,000 ha of the 87,900 ha under non-basmati paddy** that have a huge appetite for water.
- It offered the **financial assistance of Rs 2,000 per acre, free maize seeds, crop insurance and assured procurement** at minimum support price.
- Yet, crop diversification happened in just 12,000 hectares.

Mera Pani Meri Virasat

- The government relaunched the Jal Hi Jeevan Hai Scheme under a different name, Mera Pani Meri Virasat, and increased the **incentive amount to 7,000 per acre**.
- Though any farmer in the state can benefit from the scheme, the

government is targeting **eight paddy-rich blocks** where the groundwater level has dropped to below 40 m.

- As per the scheme, farmers in these blocks will be eligible for the benefits only if they **restrict paddy cultivation to 50 per cent** of the land and grow less water-consuming crops on the remaining.

Why are farmers unwilling?

- Selected blocks have **clay soil**, not suitable for maize and pulses.
- Fields get **waterlogged** in monsoon. Only paddy can survive this.
- 1 ha yields 4,474 kg of paddy, but 2,500 kg of maize. Thus the **average gross return** for paddy is more than maize.
- There is **no proper procurement system** for maize which disincentive farmers to shift from paddy.

Related Details

- Rice is the staple food crop of majority of Indian people.
- **West Bengal** is the top rice producing state.
- **India** is the second largest producer of rice in the world after China.
- **India** is also the world's biggest exporter of rice.

Suitable conditions for Paddy Cultivation

1) Temperature:

- Rice is a tropical crop and grown where the average temperature during the growing season is between **20°C and 27°C**.
- Abundant sunshine is essential during its four months of growth.
- The minimum temperature should not go below 15°C as germination cannot take place below that temperature.

2) Rainfall:

- Regions are having average annual rainfall between **175—300 cm** are the most suitable.

3) Soil:

- **Clayey loam soil** in monsoon land is considered to be the best for rice cultivation as water retention capacity of this soil is very high.

4) Surface:

- Unlike other crops, paddy needs a level surface to enable the **fields to be flooded** at least during the growing period. It's ideal habitat is therefore in the **great alluvial deltas and river basins**.

Economy

1) Equalisation Levy

Background

- Equalisation Levy was introduced in India in **2016**, with the intention of **taxing the digital transactions** i.e. the income accruing to foreign e-commerce companies from India.
- Equalization levy of **6%** was introduced on **payment of online advertisements made to non-residents**.
- This is to get companies such as Google and Facebook, which earn advertising revenues, into the tax net.

New levy

- The new **2%** equalisation levy which was introduced in the **2020-21 budget applies** specifically to the **Indian digital sales of non-resident e-commerce operators**.
- It is levied on any purchase by an Indian or India-based entity through an overseas e-commerce platform.
- The levy is seen aimed at taxing foreign companies which have a significant local client base in India but were billing them through their offshore units, effectively **escaping the country's tax system**.
- The deadline for payment of the first instalment for April-June is July 7, 2020.

Why in News?

- The government recently said it is not considering extending the deadline for payment of Equalisation Levy by non-resident e-commerce players.
- Earlier, **the U.S.-India Strategic Partnership Forum (USISPF)** urged the finance ministry to defer the tax or postpone the date for payment.

About USISPF

- The US-India Strategic Partnership Forum is a **non-profit organization**, with the primary objective of strengthening the U.S.-India bilateral and strategic partnership.

2) Why does India need a fiscal council?

What is a Fiscal council?

- Fiscal councils are **independent public institutions aimed at strengthening commitments to sustainable public finances** through various functions, including public assessments of fiscal plans and performance, and the evaluation or provision of macroeconomic and budgetary forecasts.

Mandate of fiscal council:

- As per FRBM Review Committee model, the fiscal council's mandate will include,
 1. Making multi-year fiscal projections,
 2. Preparing fiscal sustainability analysis,
 3. Providing an independent assessment of the central government's fiscal performance and compliance with fiscal rules,
 4. Recommending suitable changes to fiscal strategy to ensure consistency of the annual financial statement and
 5. Taking steps to improve quality of fiscal data, producing an annual fiscal strategy report which will be released publicly.
- A fiscal council, at its core, is a **permanent agency** with a mandate to **independently assess the government's fiscal plans and projections against parameters of macroeconomic sustainability, and put out its findings in the public domain**.
- The expectation is that such an open scrutiny will keep the government on the straight and narrow path of fiscal virtue and hold it to account for any default.
- According to the **International Monetary Fund (IMF)**, about 50 countries around the world have established fiscal councils with varying degrees of success.

Why do we need a fiscal council now?

- We do have a chronic problem of **fiscal irresponsibility**.
- An IMF working paper published recently showed that the presence of an independent fiscal council tends to **boost accuracy of fiscal projections** even as it **helps countries stick to fiscal rules better**.
- The government should spend more to stimulate the COVID-19 induced falling economy by borrowing without jeopardising medium term growth prospects for which an institution like fiscal council is necessary.

Expert Committee recommendations on fiscal council

- In 2017, the **N.K. Singh committee on the review of fiscal rules** set up by the Ministry of Finance suggested the creation of an independent fiscal council that would provide forecasts and advise the government on whether conditions exist for deviation from the mandated fiscal rules.
- In 2018, the **D.K. Srivastava committee on fiscal statistics** established by the National Statistical Commission (NSC) also suggested the establishment of a fiscal council that could coordinate with all levels of government to provide harmonized fiscal statistics across governmental levels and provide an annual assessment of overall public sector borrowing requirements.
- These recommendations follow similar recommendations from the **13th and 14th finance commissions**, which also advocated the establishment of independent fiscal agencies to review the government's adherence to fiscal rules, and to provide independent assessments of budget proposals.

Arguments against fiscal council

Lack of demand for accountability

- The **Fiscal Responsibility and Budget Management Act (FRBM Act), 2003** enjoins the government to conform to

pre-set fiscal targets, and in the event of failure to do so, to explain the reasons for deviation.

- The government is also required to submit to Parliament a '**Fiscal Policy Strategy Statement (FPSS)**' to demonstrate the credibility of its fiscal stance. Yet, an in-depth discussion in Parliament on the government's fiscal stance and submission of FPSS rarely occurred.
- If the problem clearly is lack of demand for accountability, how will another instrumentality such as a fiscal council for supply of accountability be a solution?

Adds more noise than to signal

- The fiscal council will give macroeconomic forecasts which the Finance Ministry is expected to use for the budget, and if the Ministry decides to differ from those estimates, it is required to explain why it has differed.
- Forcing the Finance Ministry to use someone else's estimates will **dilute its accountability**.

Undermined role of CAG

- Another argument made in support of a fiscal council is that in its role as a watchdog, it will prevent the government from gaming the fiscal rules through creative accounting.
- But there is already an institutional mechanism by way of the **Comptroller and Auditor General (CAG) audit** to check that. If that mechanism has lost its teeth, then fix that rather than create another costly bureaucratic structure.

Way forward

- Despite arguments against creation of a fiscal council, a fiscal council will indeed add value definitely. Then the way forward is to start small and scale it up if it proves to be a positive experience.
- A week before the scheduled budget presentation, let the CAG, a constitutional authority, appoint a

three-member committee for a five-week duration with a limited mandate of scrutinising the budget after it is presented to Parliament for its fiscal stance and the integrity of the numbers, and give out a public report.

- The committee will be wound up after submitting its report leaving no scope for any mission creep.

3) India's External Debt

What is External Debt?

- External debt is the portion of a country's debt that is borrowed from foreign lenders through commercial banks, governments, or international financial institutions.
- **Governments and eligible corporations** can raise loans from abroad.

Components of External Debt

- India's external debt includes
 1. **Commercial Borrowings,**
 2. **Sovereign Borrowings,**
 3. **Non-Resident Deposits,**
 4. **Trade credits.**

Why in News?

- According to RBI data, India's external debt stood at \$558.5 billion in March, an increase of \$15.4 billion compared with the year-ago period.
- **Commercial borrowings** remained the largest component of the external debt, with a share of 39.4%, followed by **non-resident deposits** at 23.4% and **short-term trade credit** at 18.2%.
- **U.S. dollar-denominated debt** continued to be the largest component of India's external debt, with a share of 53.7% at end-March 2020, followed by the Indian rupee (31.9%), yen (5.6%), SDR (4.5%) and the euro (3.5%).
- The RBI also said **debt service (principal repayments plus interest payments)** increased marginally to 6.5% of current receipts at the end of March compared to 6.4% in the same period a year ago. This reflects higher

interest payments on commercial borrowings and lower current receipts.

4) Trade deficit with China

What's in the news?

- According to the latest government data, **India's trade deficit with China fell to \$48.66 billion in 2019-20** on account of the decline in imports from the neighbouring country.
- Exports to China in the last financial year stood at \$16.6 billion, while imports aggregated at \$65.26 billion.
- The trade deficit stood at \$53.56 billion in 2018-19 and \$63 billion in 2017-18.
- China accounts for about **14% of India's imports** and is a major supplier for sectors like mobile phones, telecom, power, plastic toys, and critical pharma ingredients.

Measures by India

- India has time and again raised concerns over the widening trade deficit with China. The government is framing technical regulations and quality norms for several products to reduce dependence on Chinese imports.
- It has also **imposed anti-dumping duties** on several goods, which are being dumped in the domestic market at below the average prices from China with a view to guarding domestic players from cheap imports.
 - *An anti-dumping duty is a tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.*

FDI

- Foreign Direct Investment (FDI) from China in India has dipped to \$163.78 million in 2019-20 from \$229 million in the previous fiscal.
- In April, 2020, India tightened FDI norms coming from the countries which share land borders with India. As per the amended FDI policy, a company or an individual from a **country that shares land border**

with India can invest in any sector **only after getting government approval.**

5) Operation Twist

What is it?

- Operation Twist is an initiative of the RBI that aims to **control long-term bond yields and bring down interest rates on long-term borrowing.**
- It is a monetary policy intervention by the central bank, conducted through **Open Market Operations (OMOs)**, where the central bank is **buying long term government securities and at the same time selling short term government securities.**
- Buying long term securities and selling short term securities will reduce the yield of long term securities. This yield impact is the objective of Operation Twist.
- Yield is the return an investor gets on his bond.

Rationale behind Operation Twist

- Whenever there is a long-term investment deficit in the country and the investors are hesitant to make long-term investments in the economy, the government or the central bank jumps in to revive growth by lowering the interest rate for long-term investment ventures.
- As the central bank buys long-term securities (bonds), their demand rises which in turn pushes up their prices.
- However, the bond yield comes down with an increase in prices, because there is an **inverse relationship between the bond prices and their yields.**

How will it affect the economy?

- The interest rate in an economy is determined by yield. Thus, lower longer-term yields reduces long-term interest rates, which means people can avail long-term loans (such as buying houses, cars or financing projects) at lower rates.

- This also results in a dip in the expected returns from long-term savings which tilts the balance from saving towards spending.
- Hence, cheaper retail loans can help **encourage consumption spending** which is the largest GDP component in the economy.

Why in News?

- The RBI has announced to restart Operation Twist to soften long-term yields on July 2.
- The RBI will purchase longer tenure government bonds that are maturing in 2027, 2029, 2031 and 2033, while selling four securities of shorter maturity.
- Operation Twist was used by the RBI in December 2019 for the first time.

Related Information

What are Open Market Operations (OMOs)?

- Open Market Operations are conducted by the RBI which involves sale or purchase of **G-Secs** to or from the market. The objective is to control the **money supply conditions.**
- If there is excess money supply (i.e. excess liquidity) in the market, the RBI resorts to sale of securities which reduces the volume of money. Similarly, when the liquidity conditions are tight, it buys securities from the market, thereby releasing money into the market.

What are Government Securities (G-Secs)?

- G-Secs are tradable instruments like bonds issued by the **Central Government or the State Governments** with a promise of repayment upon maturity.
- The Central Government can issue both **treasury bills and bonds** while the State Governments can issue **only bonds**, which are called the **State Development Loans (SDLs).**
- These securities are considered low-risk, since they involve the government

and hence, are called **risk-free gilt-edged instruments**.

6) Marginal Standing Facility

About MSF

- Marginal Standing Facility (MSF) is an overnight liquidity support provided by RBI to commercial banks with a higher interest rate over the repo rate.
- MSF can be used by a bank after it exhausts its eligible security holdings for borrowing under other options. Under MSF, banks can borrow funds from the RBI by pledging government securities within the limits of the Statutory Liquidity Ratio (SLR).
- MSF, being a penal rate, is **always fixed above the repo rate**.

Objectives

- The scheme was introduced by RBI with the main aim of **reducing volatility in the overnight lending rates** in the inter-bank market and to enable **smooth monetary transmission** in the financial system.

Why in News?

- In March 2020, the RBI increased the cap for liquidity available under the marginal standing facility, **from 2 per cent to 3 per cent of their Net Demand and Time Liabilities (NDTL) — or deposits**.
- Now, the RBI has decided to extend the enhanced borrowing facility provided to the banks to meet their liquidity shortages under the marginal standing facility scheme.
- This relaxation, which was granted till June 30, 2020, has now been extended till September 30.

7) Participatory Notes

What are P-Notes?

- P-Notes or Participatory Notes are instruments **issued by a registered Foreign Institutional Investor (FII) to an overseas investor who wishes to invest in Indian stock markets without registering themselves with**

the market regulator, the Securities and Exchange Board of India (SEBI).

What are the government & regulatory concerns?

- The primary reason why P-Notes are worrying is because of the **anonymous nature of the instrument** as these investors could be beyond the reach of Indian regulators.
- Further, there is a view that it is being used in **money laundering** with wealthy Indians, like the promoters of companies, using it to bring back unaccounted funds and to manipulate their stock prices.

What has SEBI done to regulate P-Notes?

- SEBI has taken a number of steps to tighten rules on P-Notes.
- From January 2011, FIIs have had to follow **KYC norms and submit details of transactions**.
- In 2014, new rules on FIIs made it mandatory for those issuing P-Notes to submit a **monthly report** disclosing their portfolios.
- Also, SEBI has mandated that in addition to KYC, the **anti-money laundering rules (AML)** will also be applicable to P-Note holders.
- SEBI also issued norms on **transferability of P-Notes** between two foreign investors and increased the frequency of reporting by P-Note issuers.

Why in News?

- Investments through P-notes in the domestic capital market surged to Rs 62,138 crore till June-end, making it the third consecutive monthly rise.

8) Inverted duty structure

What is it?

- Inverted duty structure is a situation where **import duty on finished goods is low compared to the import duty on raw materials** that are used in the production of such finished goods.

- For example, suppose the tariff on the import of tyres is 10% and the tariff on the imports of natural rubber which is used in the production of tyres is 20%; this is a case of inverted duty structure.

How it affects domestic industry?

- When the import duty on raw materials is high, it will be more difficult to produce the concerned goods domestically at a competitive price. Several industries depend on imported raw materials and components.
- High tax on the raw materials compels them to raise prices. On the other hand, foreign finished goods will be coming at a reduced price because of low tax advantage. In conclusion, **manufactured goods by the domestic industry become uncompetitive** against imported finished goods.
- The disadvantage of the inverted duty structure increases with the increased use of imported raw materials. An inverted duty structure **discourages domestic value addition.**

Why in News?

- Union Finance Ministry said that reducing GST on hand sanitisers and similar products from 18% would lead to an inverted duty structure and put domestic manufacturers at a disadvantage vis-à-vis importers.
- The Ministry added that **lower GST rates helped imports by making them cheaper**, that this was against the policy on Atmanirbhar Bharat and consumers would also eventually not benefit from lower rates if domestic manufacturing suffered due to an inverted duty structure.
- **Note:** Under the GST regime, import of goods and services will be treated as inter-state supplies and IGST will be levied (in addition to Basic Customs Duty).

9) Green Growth Equity Fund

What is it?

- The Green Growth Equity Fund (GGEF) was established in 2017 as a **joint UK-India fund** specifically designed to **promote sustainable energy projects.**
- The two countries have invested over £240 million of anchor capital into the fund, which is expected to raise up to £500 million from institutional investors.
- GGEF is registered as an **Alternative Investment Fund (AIF)** with the Securities and Exchange Board of India (SEBI).

Why in News?

- GGEF has started to mobilise private investment.

About AIF

- Alternative Investment Fund means any fund established or incorporated in India which is a privately pooled investment vehicle which collects funds from sophisticated investors, whether Indian or foreign, for investing it in accordance with a defined investment policy for the benefit of its investors.
- AIFs are private funds which are otherwise not coming under the jurisdiction of any regulatory agency in India.
- **AIF does not include funds covered under the SEBI (Mutual Funds) Regulations, 1996, SEBI (Collective Investment Schemes) Regulations, 1999 or any other regulations of the Board to regulate fund management activities.**
- **Categories of AIF:**
 1. Category I AIF (venture capital funds, social venture funds, infrastructure funds, etc)
 2. Category II AIF (real estate funds, private equity funds, funds for distressed assets, etc)
 3. Category III AIF (hedge funds, private investment in public equity (PIPE) Funds, etc)

- In India, AIFs are regulated by the **Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012.**

10) GI Tag

About GI Tag

- A geographical indication (GI) is a sign used on products that have a **specific geographical origin** and possess qualities or a reputation that are due to that origin. In order to function as a GI, a sign must identify a product as originating in a given place.
 - It is used for **agricultural, natural and manufactured goods.** Darjeeling tea became the first GI tagged product in India.
 - The registration of GI is valid for **10 years** after which it needs to be renewed.
 - It should be noted that registration of a product is **not compulsory.**
1. Registration affords better legal protection to facilitate an action for infringement
 2. The registered proprietor and authorised users can initiate infringement actions
 3. The authorised users can exercise the exclusive right to use the geographical indication.

Legislations

- In India, GI is given under the **Geographical Indications of Goods (Registration and Protection) Act, 1999.**
- The Act is administered by the **Controller General of Patents, Designs & TradeMarks, GI (CGPDTM-India)** under the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry.
- India enacted its GI legislation to comply with India's obligations under the Trade-Related Aspects of Intellectual Property Rights (**TRIPS**) agreement.

- GI registration gives to the registered proprietor and its authorized users, the legal right to the exclusive use of the GI and also the right to obtain relief in case of its infringement.
- GI is a **collective intellectual property right** and is thus owned by all the producers within the defined GI territory unlike intellectual properties like patent and trademark which are owned by an individual or a business entity.

Benefits of registration of Geographical Indications

- It confers **legal protection** to Geographical Indications in India
- **Prevents unauthorised use** of a Registered Geographical Indication by others
- It provides legal protection to Indian Geographical Indications which in turn **boost exports.**
- It **promotes economic prosperity** of producers of goods produced in a geographical territory.

Why in News?

- **Kashmir saffron**, which is cultivated and harvested in the **Karewa (highlands) of Jammu and Kashmir**, has received the GI tag by the Geographical Indications Registry.

Significance

- Iran is the largest producer of saffron and India is a close competitor. With the GI tag, Kashmir saffron would gain more prominence in the export market and would help farmers get the best remunerative price.
- It is the **only saffron in the world** grown at an altitude of 1,600 m to 1,800 m AMSL (above mean sea level).
- The GI certification would also stop adulteration prevalent in the trade of Kashmir saffron.

11) Strategic sale of PSUs

What is Disinvestment?

- Divestment or disinvestment means selling a stake in a company, subsidiary or other investments.
- Governments resort to divestment generally to reduce financial burden due to inefficient public sector undertakings (PSUs) and to improve public finances. It introduces competition and market discipline and helps to depoliticise non-essential services.

What is Strategic disinvestment?

- Strategic disinvestment implies the sale of a substantial portion of the Government shareholding of central public sector enterprises (CPSE) of **up to 50%, or such higher percentage** as the competent authority may determine, **along with transfer of management control.**

Nodal Authority

- The **Department of Investment and Public Asset Management (DIPAM)** under the Ministry of Finance is the nodal department for the strategic disinvestment.
- **DIPAM and NITI Aayog** jointly identify PSUs for strategic disinvestment.

New Public Sector Enterprise Policy

- Recently, as a part of the **Aatmanirbhar Bharat package**, the government announced that it **will open all sectors to the private sector** including strategic sectors, and a new coherent policy in this regard will be unveiled.
- The proposed policy will notify the **list of strategic sectors** requiring the presence of at least one state-owned company along with the presence of the private sector. In all other sectors, the government plans to privatise public sector enterprises depending upon the feasibility.
- Even in the strategic sectors, no more than four PSUs will be allowed, with the rest being privatised, merged or brought under holding companies.

Why in News?

- Finance Minister Nirmala Sitharaman recently said that the government is working on completing the stake sale process of about 23 public sector companies whose divestment has already been cleared by the Cabinet.
- She said this would lead to consolidation of PSUs as well as scaling up of their operations.

12) New currency swap facility

What are currency swap arrangements?

- In the swap arrangement, generally a country provides dollars to a foreign central bank, which, at the same time, provides the equivalent funds in its currency to the former, based on the market exchange rate at the time of the transaction.
- The parties agree to swap back these quantities of their two currencies at a specified date in the future, which could be the next day or even two years later, using the same exchange rate as in the first transaction.

Why in News?

- The RBI has signed an agreement for extending a **\$400-million currency swap facility to Sri Lanka** to boost the foreign reserves and ensure financial stability of the country, which is badly hit by the COVID-19 pandemic.
- The currency swap arrangement will remain available till November 2022.
- While Sri Lanka's forex reserves were at \$ 6.7 billion in June 2020, India's forex reserves were at a record high of **\$ 517.63 billion** as of July, 2020.

Similar arrangements

- The RBI also offers similar swap lines to central banks in the **SAARC region** within a total corpus of \$2 billion.
- This facility originally came into operation on November 15, 2012 to provide a backstop line of funding for short-term foreign exchange liquidity requirements or balance of payment

crises until longer term arrangements were made.

- Under the facility, RBI offers swaps of varying sizes in US Dollars, Euro or Indian Rupee to each SAARC member country depending on their two months import requirement.
- India also has a \$75 billion bilateral currency swap line with **Japan**, which has the second highest dollar reserves after China.

Advantages of such arrangements

- These swap operations **usually carry no exchange rate risk**, as transaction terms are set in advance. The absence of an exchange rate risk is one of the major benefits of such a facility.
- This facility provides the country, which is getting the dollars, with the **flexibility to use these reserves at any time** in order to maintain an appropriate level of balance of payments or short-term liquidity.

13) Forms of Economic integration

What are they?

- Economic integration takes the form of the Preferential Trade Area, Free Trade Area, Customs Union, Common Market and Economic Union.
- A **preferential trade area (PTA)** is a trading bloc that gives preferential access to certain products from the participating countries. This is done by reducing tariffs but not by abolishing them completely. A PTA can be established through a trade pact. It is the first stage of economic integration.
- A **free trade area** is the region encompassing a trade bloc whose member countries have signed a free-trade agreement (FTA). Such agreements involve cooperation between at least two countries to reduce/abolish trade barriers. e.g. South Asian Free Trade Area (SAFTA).
- A **customs union** is defined as a type of trade block which is composed of a

free trade area with no tariffs among members and a common external tariff. e.g. BENELUX (Belgium, Netherlands and Luxembourg).

- A **common market** has the same features as a customs union, but, in addition, factors of production (labour, capital and technology) are mobile among members. Restrictions on immigration and cross-border investment are abolished. e.g. European Common Market (ECM).
- An **economic union** is the last step in an economic integration process. In addition to free movement of goods, services and production factors, it also requires integration of economic policies, both monetary and fiscal. Under economic union, members harmonized monetary policies, taxation and government spending. (e.g. European Economic Union)

Why in News?

- Commerce Minister Piyush Goyal recently said that India and the U.S. have almost finalised a limited trade deal.
- Mr. Goyal also reiterated that the longer term plan is to work towards a comprehensive trade deal. As an intermediate step between the imminent limited deal and the comprehensive deal, Mr. Goyal proposed a **preferential trade agreement** with the United States that would cover 50 to 100 goods and services, rather than waiting for the gains of a free trade agreement, which may take several years to conclude.

What are the issues?

- India and the U.S. were apparently close to finalising a limited trade deal several times over the past year.
- India wanted the U.S. to restore its access to the U.S. preferential trading system, the **Generalized System of Preferences (GSP)**, an end to the U.S. steel and aluminium tariffs, increased market access for some categories of

Indian agricultural products and so forth.

- U.S. concerns during the negotiations have included market access for American dairy and agricultural products, medical devices and a cut in information and communication technology (ICT) import tariffs. The U.S. has also had concerns with India's digital trade policies (for instance FDI in commerce, data localisation).

About GSP

- The Generalised System of Preferences is one of the oldest trade preference programmes in the world, under which **developed countries offer preferential treatment** (such as zero or low duties on imports) **to products originating in developing countries**.
- GSP is presently extended by **around 30 developed countries**.
- India, as a developing country, enjoyed special trade benefits from the **GSP programme of U.S** which allowed duty-free entry of Indian goods worth \$5.6 billion into the U.S.
- In June 2019, the U.S. decided to **terminate** India's eligibility for the GSP based on complaints from US' dairy and medical device industries alleging that India has implemented a wide array of trade barriers that are affecting the US exports in those sectors.

14) Restrictions on bidders from nations sharing land borders

What's in the news?

- In a move that will mainly affect entities from China, the government has amended the General Financial Rules, 2017, imposing **restrictions on public procurement** from bidders of **countries that share a land border with India**, citing grounds of defence and national security.
- Bidders from these countries will be eligible only if they are registered with the **Registration Committee**

constituted by the Department for Promotion of Industry and Internal Trade (DPIIT). They will also be required to take mandatory **political and security clearance** from the Ministries of External Affairs and Home.

- The central government has also directed state governments to implement this order for all public procurement.
- India shares its land border with **China, Nepal, Bhutan, Pakistan, Afghanistan, Bangladesh and Myanmar**.

Background

- The move will effectively put in place more filters for entities from China.
- The restrictions follow a series of steps taken in recent months to **prevent the influx of Chinese products and investments into India**.
- On June 23, the government made it mandatory for sellers on the **Government e-Marketplace (GeM) portal** to clarify the country of origin of goods when registering new products.
- The GeM portal now allows buyers to reserve a bid for Class I local suppliers, or suppliers of those goods with more than 50 per cent local content. For bids below Rs 200 crore, only Class I and Class II (those with more than 20 per cent local content) are eligible.
- The decision came in the backdrop of the government's push for **Atmanirbhar Bharat**, and following the clashes between Indian and Chinese troops in **Galwan Valley** on June 15, which prompted several government departments to launch an offensive against imports from China.

More filters in place

- At \$70.32 billion in 2018-19 and \$62.38 billion between April 2019 and February 2020, **China accounts for the highest proportion of goods**

imported into India — around 14 per cent in 2019-2020 so far.

- In April 2020, the government amended **FDI rules** mandating prior approval for investment by entities in countries that share land borders with India.
- The government stated that prior approval was compulsory for foreign investments from all countries sharing borders with India to **prevent “opportunistic takeovers” of domestic firms** following the pandemic.

Related information

- Launched in 2016, the Government e-Marketplace (GeM) is a 100 percent government-owned company setup

under the aegis of the **Ministry of Commerce and Industry**.

- It is a completely paperless, cashless and system driven e-market place that enables procurement of common use goods and services with minimal human interface. GeM aims to enhance transparency, efficiency and speed in public procurement.
- GeM was developed with the technical support of the **National eGovernance Division** (Ministry of Electronics and Information Technology).
- In 2017, the government made it **mandatory** for all the departments and ministries to source goods and services from the GeM.

Organisations

1) ECOSOC

About ECOSOC

- The United Nations Economic and Social Council (ECOSOC) is **one of the six principal organs of the United Nations**.
- It is responsible for the **direction and coordination of the economic, social, humanitarian, and cultural activities carried out by the UN**.
- ECOSOC was established by the UN Charter (1945), which was amended in 1965 and 1974 to increase the number of members from 18 to 54. ECOSOC membership is based on **geographic representation**.
- ECOSOC is responsible for promoting higher standards of living, full employment, and economic and social progress; identifying solutions to international economic, social and health problems; facilitating international cultural and educational cooperation; and encouraging universal respect for human rights and fundamental freedoms.

Why in News?

- Recently, Prime Minister Narendra Modi participated at a high-level dialogue of the U.N.'s Economic and Social Council on the subject 'Multilateralism after COVID-19: What kind of UN do we need at the 75th Anniversary?'
- Outlining India's fight against the COVID-19 pandemic, Mr. Modi said that India has extended assistance to more than 150 countries, and helped set up a **SAARC COVID-19 emergency fund** in the South Asian neighbourhood.
- He added that only reformed multilateralism with a reformed United Nations at its centre can meet the aspirations of humanity.

Additional Details

About SAARC

- The South Asian Association for Regional Cooperation (SAARC) was established in 1985 with 7 founding members.
- SAARC now comprises eight Member States: **Afghanistan** (joined in 2007), **Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka**.
- The Secretariat of the Association is located in **Kathmandu, Nepal**.
- The objectives of the Association include promotion of welfare of the peoples of South Asia and to improve their quality of life; to accelerate economic growth, social progress and cultural development in the region and to provide all individuals the opportunity to live in dignity and to realize their full potential.
- Decisions at all levels are to be taken on the **basis of unanimity**; and bilateral and contentious issues are excluded from the deliberations of the Association.

SAARC COVID-19 emergency fund

- The SAARC COVID-19 emergency fund was proposed by India in March 2020 when Mr. Modi had convened a virtual conference.
- **India had pledged US \$10 million** to start the fund, the others, including Pakistan committed about \$9.8 million together, and the SAARC secretariat committed \$5 million to the fund.
- Thus far, India has sent medical equipment worth US\$ 1 million to Nepal, Bhutan, Bangladesh and Maldives as a part of its contribution.

2) International Solar Alliance

About ISA

- International Solar Alliance (ISA) was launched in 2015 by Prime Minister Narendra Modi and former President of France Francois Hollande at the 21st session of the United Nations Climate

Change Conference of the Parties (COP-21) in Paris, France.

- The **Paris Declaration** that established the ISA states that the countries share the collective ambition to undertake innovative and concerted efforts to reduce the cost of finance and technology for deployment of solar generation assets.
- ISA was conceived as a coalition of **solar-resource-rich countries** (which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn) to address their special energy needs.
- More than 60 countries have signed and ratified the ISA Framework Agreement.
- As guided by the Framework Agreement of the ISA, the **interests and objectives of the ISA** are as follows:
 - To collectively address key common challenges to scale up solar energy applications in line with their needs;
 - To mobilize investments of more than **USD 1000 billion by 2030**;
 - To take coordinated action through programmes and activities launched on a voluntary basis, aimed at better harmonization, aggregation of demand, risk and resources, for promoting solar finance, solar technologies, innovation, R&D, capacity building etc.;
 - Reduce the cost of finance to increase investments in solar energy in member countries by promoting innovative financial mechanisms and mobilizing finance from Institutions;

- Facilitate collaborative research and development (R&D) activities in solar energy technologies among member countries.
- Countries that do not fall between the Tropics can also join the ISA and enjoy all benefits as other members, with the **exception of voting rights**.
- The Permanent Secretariat of ISA will be located in India at **Gurugram**, the first time that an inter-governmental treaty-based alliance will have its headquarters in India. The Interim Secretariat of the ISA is located at the National Institute of Solar Energy (NISE), Gurugram.

Background

- For achieving the universalisation of the membership of the ISA beyond the tropics, the first General Assembly of the alliance, held on October 3, 2018, had adopted an amendment to the framework agreement on its establishment.
- The amendment expanded the scope of membership to all member states of the United Nations, including those beyond the tropics.

Why in News?

- After the necessary ratifications/approvals/acceptances obtained from the requisite number of ISA member countries, the above amendment has entered into force on July 15, 2020.
- It will enable member states of the UN to join the grouping, including those beyond the tropics.

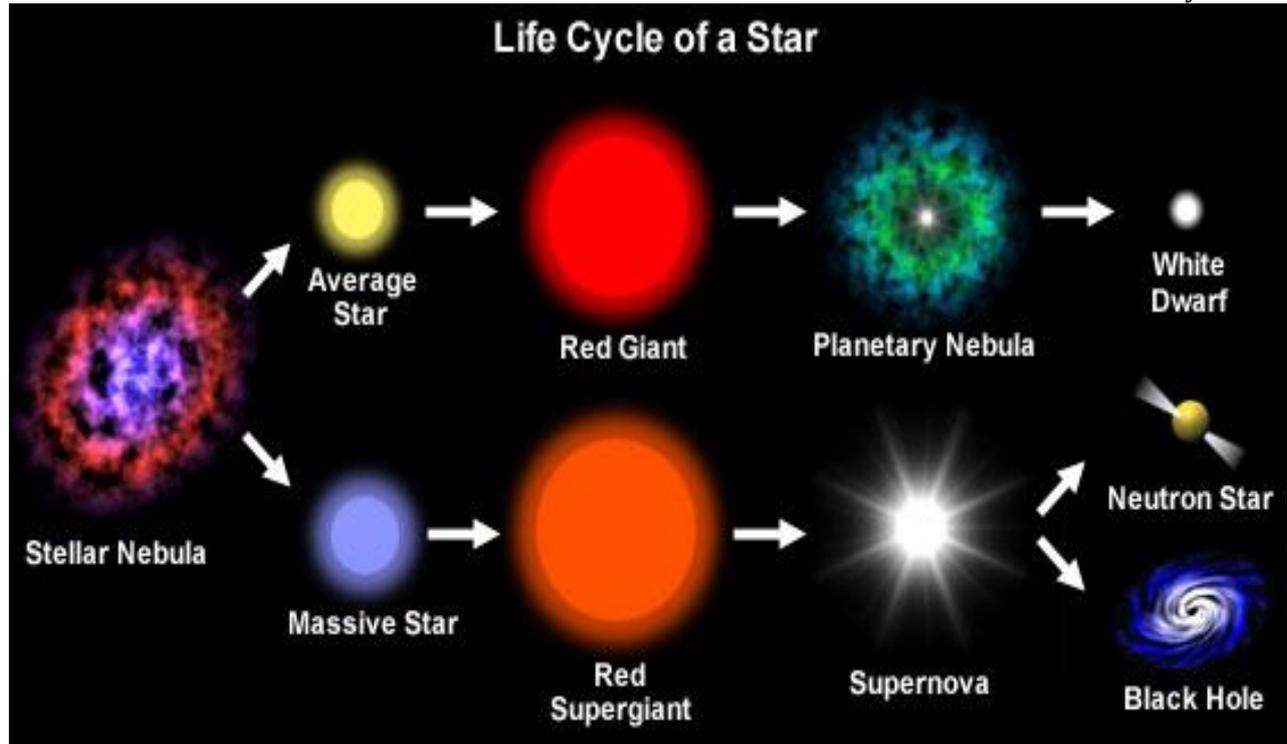
Science and Technology

1) Star Formation and Evolution

Life Cycle of a Star

- Stars are formed in clouds of gas and dust, known as **nebulae**.
- **Nuclear reactions** at the centre (or core) of stars provide enough energy to make them shine brightly for many years.

- The exact lifetime of a star depends very much on its size.
- Very large, massive stars burn their fuel much faster than smaller stars and may only last a few hundred thousand years.
- Smaller stars, however, will last for several billion years, because they burn their fuel much more slowly.



Death of stars

- Eventually, however, the **hydrogen fuel** that powers the nuclear reactions within stars will begin to run out, and they will enter the final phases of their lifetime.
- Over time, they will expand, cool and change colour to become **red giants**. The path they follow beyond that depends on the mass of the star.
- **Small stars**, like the Sun, will pass through a **planetary nebula phase** to become a **white dwarf**, which eventually cools down over time and stops glowing to become a so-called "**black dwarf**".
- **Massive stars**, on the other hand, will experience a **most energetic and**

violent end, which will see their remains scattered about the cosmos in an enormous **explosion**, called a **supernova**.

- Once the dust clears, the only thing remaining will be a very dense star known as a **neutron star**, these can often be rapidly spinning and are known as **pulsars**.
- If the star which explodes is especially large, it can even form a **black hole**.

Why in News?

- A forty-year-old puzzle regarding the **production of lithium in stars** has been solved by Indian researchers.

Unusual lithium rich stars

- Stars, as per known mechanisms of evolution, actually **destroy lithium as they evolve into red giants**.
- Planets were known to have more lithium than their stars — as is the case with the Earth-Sun pair.
- However, leading to a contradiction, some stars were found that were lithium-rich.

New findings

- Researchers have found that when stars grow beyond their Red Giant stage into what is known as the **Red Clump stage**, they produce lithium in what is known as a **Helium Flash** and this is what **enriches them with lithium**.
- This is also the first study to demonstrate that **lithium abundance enhancement among low mass giant stars is common**. Until now, it was believed that only about 1% of giants are lithium rich.

2) LIGO and VIRGO

What are Gravitational Waves?

- Gravitational waves are '**ripples**' in **space-time** caused by some of the most violent and energetic processes in the Universe.
- **Albert Einstein** predicted the existence of gravitational waves in 1916 in his general theory of relativity. Einstein's mathematics showed that massive accelerating objects (such as neutron stars or black holes orbiting each other) would disrupt space-time in such a way that 'waves' of undulating space-time would propagate in all directions away from the source.
- These cosmic ripples would travel at the speed of light, **carrying with them information about their origins, as well as clues to the nature of gravity itself**.
- The strongest gravitational waves are produced by **cataclysmic events** such as colliding black holes, supernovae

(massive stars exploding at the end of their lifetimes), and colliding neutron stars.

Why does one study gravitational waves?

- As a largely unknown and fundamental phenomenon, gravitational waves are interesting to scientists. But once many more detectors are in place, the study also offers a **new way to map out the universe**, using gravitational-wave astronomy.
- Extracting the information carried by the waves to **address questions in both physics and astronomy** depends on our ability to identify where the individual sources are in the sky. This requires a network of detectors spread widely over the Earth.

About LIGO

- LIGO stands for "**Laser Interferometer Gravitational-wave Observatory**", the **world's largest gravitational wave observatory**.
- LIGO exploits the physical properties of light and of space itself to **detect and understand the origins of gravitational waves (GW)** predicted by Einstein's General Theory of Relativity.
- LIGO consists of **two widely-separated interferometers** within the United States—one in Hanford, Washington and the other in Livingston, Louisiana—operated in unison to detect gravitational waves.
- Each LIGO detector consists of two arms, each 4km long, comprising 1.2m-wide steel vacuum tubes arranged in an "**L**" **shape**, and covered by a concrete shelter that protects the tubes from the environment.
- LIGO's interferometers can amplify the smallest conceivable vibrations enough that they are detectable and measurable.

Properties



- **LIGO is blind.** LIGO, unlike usual telescopes, does not “see” the incoming ripples in space-time. It does not even need to, because gravitational waves are **not a part of the electromagnetic spectrum or light**.
- They are not light waves but a different phenomenon altogether — a stretching of space-time due to immense gravity. **A single LIGO detector cannot confidently detect this disturbance on its own.** At least two detectors are needed.
- This is because the signal is so weak that even a random noise could give out a signal that can mislead one into thinking a genuine gravitational wave has been detected. It is because two detectors have detected the faint signal in coincidence that the observer is convinced it is a genuine reading and not noise.

Detection of gravitational waves

- LIGO made its first detection of gravitational waves (in **2015**), generated by a pair of colliding black holes some 1.3 billion light years away.
- Following the 2015 detection, which later won the Physics Nobel (2017), the two LIGO detectors detected seven such binary black hole merger events before they were joined by the **European Virgo detector** in 2017. The two facilities have now detected 10 events.
- The **Japanese detector, KAGRA**, or **Kamioka Gravitational-wave**

Detector, is expected to join the international network soon.

- In the meantime, in collaboration with LIGO, a gravitational wave detector is being set up in **India**. The LIGO India project is expected to join the international network in a first science run in 2025.

What is the need to have another detector in India?

- Right now, with just three detectors, there is huge uncertainty in determining where in the sky the disturbance came from. Observations from a new detector in a far-off position will help locate the source of the gravitational waves more accurately.
- LIGO India will come up in **Maharashtra**, near Aundha in Hingoli district.

Why in News?

- The LIGO Scientific and VIRGO Collaborations (LSC) have detected an unusual compact object whose mass falls in between that of a typical black hole and a neutron star.

News in Detail

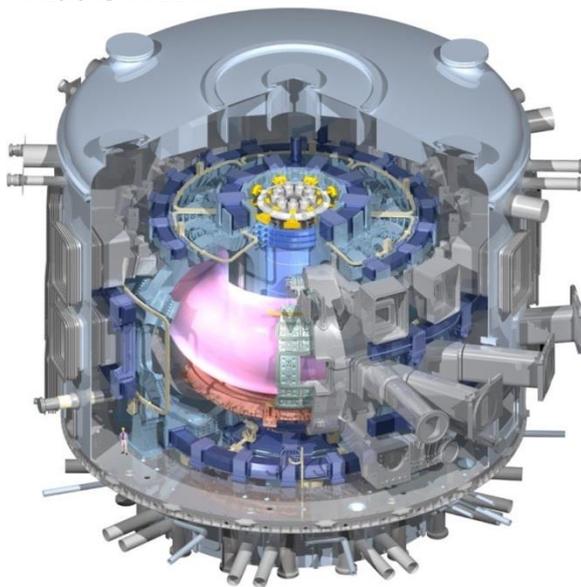
- When the most **massive stars die**, they collapse under their own gravity and leave behind **black holes**; when stars that are a bit **less massive** than this die, they explode and leave behind dense, dead remnants of stars called **neutron stars**.
- For decades, astronomers have been puzzled by a gap in mass that lies between neutron stars and black holes: the heaviest known neutron star is no more than 2.5 times the mass of our sun, or 2.5 solar masses, and the lightest known black hole is about 5 solar masses.
- With the above observations, scientists have announced the discovery of an object of 2.6 solar masses, placing it firmly in the mass gap.

What is VIRGO?

- Virgo is a **gravitational-wave interferometer** designed, built and operated by a **collaboration made up of 20 laboratories in 6 countries:** Italy, France, the Netherlands, Poland, Hungary and Spain.
- It consists of two 3-kilometre-long arms, which house the various machinery required to form a laser interferometer.
- It is located in Santo Stefano a Macerata, near the city of Pisa, **Italy**.
- Virgo and the LIGO Scientific Community work together in many areas and have a specific agreement on the exchange of data.

3) ITER Project

What is ITER?



- ITER (the International Thermonuclear Experimental Reactor), is one of the **most ambitious energy projects** in the world today.
- ITER is an **experimental tokamak fusion reactor** facility under construction in Cadarache, **France** to prove the feasibility of nuclear fusion as a future source of energy.
- It is an **international joint experiment** in fusion, first launched in **1985**.
- The ITER Members—mainly **China, the European Union, India, Japan,**

Korea, Russia and the United States—35 nations in total are now engaged in a **35-year collaboration** to build and operate the ITER experimental device.

About Fusion reaction

- Fusion is the **energy source of the Sun and stars**.
- In the tremendous heat and gravity at the core of these stellar bodies, **hydrogen nuclei collide**, fuse into heavier **helium** atoms and **release tremendous amounts of energy** in the process.
- Efficient fusion reaction is identified to be between **two hydrogen isotopes, deuterium (D) and tritium (T)**.
- The DT fusion reaction produces the highest energy gain at the "lowest" temperatures.
- **Three conditions** must be fulfilled to achieve fusion in a laboratory:
 1. very high temperature (on the order of 150,000,000° Celsius);
 2. sufficient plasma particle density (to increase the likelihood that collisions do occur); and
 3. sufficient confinement time (to hold the plasma, which has a propensity to expand, within a defined volume).
- At extreme temperatures, electrons are separated from nuclei and a gas becomes **plasma**—often referred to as the **fourth state of matter**.
- Fusion plasmas provide the environment in which light elements can fuse and yield energy.
- In a tokamak device, powerful magnetic fields are used to confine and control the plasma.

What is a Tokamak?

- The tokamak is an experimental machine designed to harness the energy of fusion.
- Inside a tokamak, the energy produced through the fusion of atoms is absorbed as heat in the walls of the vessel.

- Just like a conventional power plant, a fusion power plant will use this heat to produce steam and then electricity by way of turbines and generators.

Significance

- It is a **carbon-free source of energy** based on the same principle that powers our Sun and stars. ITER's First Plasma is scheduled for December 2025. That will be the first time the machine is powered on.
- ITER will be the **first fusion device to produce net energy** (total power produced during a fusion surpasses the thermal power injected to heat the plasma).
- ITER will be the **first fusion device to maintain fusion for long periods of time.**
- And ITER will be the **first fusion device to test the integrated technologies, materials, and physics regimes** necessary for the commercial production of fusion-based electricity.

India and ITER

- India formally joined the ITER Project in **2005** and the ITER Agreement between the partners was signed in 2006.
- ITER Organization (IO) is the central team responsible for construction at site and operation, while the ITER partners created their own domestic agencies to deliver their commitments to ITER.
- **ITER-India, a wing of Department of Atomic Energy,** is the Indian domestic agency.

Why in News?

- The L&T Ltd, an Indian multinational conglomerate, dispatched the most complex and final assembly of Cryostat to ITER site in France.
- It is the largest stainless-steel, high-vacuum pressure chamber in the world.
- The Cryostat's function is to provide cooling to the fusion reactor and to

keep very high temperatures at its core under control.

4) Itolizumab drug for COVID-19 therapy

Why in the news?

- **Drugs Controller General of India (DCGI)** gave approval to market **Itolizumab** for **treatment of cytokine release syndrome (CRS)** in moderate to severe acute respiratory distress syndrome patients due to COVID-19.
- Itolizumab is a **monoclonal antibody** which is used to treat acute psoriasis (a skin disease).

About Cytokine storm

- An **immune reaction** triggered by the body to fight an infection is known as a **cytokine storm** when it **turns severe.**
- The body releases too many **cytokines**, proteins that are involved in immunomodulation, into the blood too quickly. While normally they regulate immune responses, in this case they cause harm and can even cause death.
- These cytokines dilate blood vessels, increase the temperature and heartbeat, besides throwing blood clots in the system, and suppressing oxygen utilisation.
- If the cytokine flow is high and continues without cessation, the body's own immune response will lead to **hypoxia** i.e. insufficient oxygen to the body, multi-organ failure and death.

What are monoclonal antibodies?

- Monoclonal antibodies are **proteins cloned in the lab to mimic antibodies produced by the immune system** to counter an infection.
- They have their origin in **serum**, the colourless constituent of blood that contains antibodies.
- These proteins bind to an antigen, the fragment of an infectious virus in the case of SARS-CoV-2, and either destroy it or block its action.

Plasma therapy vs monoclonal antibodies

- Convalescent plasma is a constituent of blood and recovered from those who have successfully fought the disease. This blood contains antibodies produced within a week or two of being infected.
- While plasma therapy involves **injecting this entire antibody extract** into another sick patient, a monoclonal antibody can be made by **isolating specific antibodies** and multiplying them via various techniques.

Advantages of monoclonal antibodies over plasma therapy

- Isolating plasma and serum is laborious and time-consuming when it must be administered to every patient but in monoclonal antibodies therapy, **antibodies once isolated can be easily replicated.**

How useful are they in treating COVID-19 patients?

- While eight in 10 of those infected by the disease recover with little more than a few days of cough and fever, about one in 10 can manifest severe systems of the disease irrespective of their age and medical history. Many have died because of the **cytokine storm.**
- Cytokine storms can be prevented by **use of antibodies** that can **block a particular protein, called CD6** which is found on the surface of T-cells, a class of cells that are a central prong in the body's defence system.
- If this CD-6 is suppressed, it will **prevent the T-cells from releasing a cytokine cascade** and thus better regulate the immune system.

5) Tianwen-1 Mission

What's in the news?

- China has successfully launched its first Mars probe - Tianwen-1- atop the **Long March-5** rocket from the coast of southern China's island province of Hainan.

About the mission

- Tianwen-1 or **Quest for Heavenly Truth 1** is China's **first fully homegrown Mars mission.**
- Tianwen-1 consists of an **orbiter and a lander/rover duo**, a combination of craft that had never before launched together toward the Red Planet.
- The orbiter will remain in the orbit for scientific operations and to relay signals while the lander-rover combination makes an autonomous descent and landing.
- The lander/rover pair will touch down on the Martian surface somewhere within **Utopia Planitia**, a large plain in the planet's Northern Hemisphere.
- The mission will conduct scientific investigations into the planet's soil, geological structure, environment, atmosphere and water.

Related details

- The **US, Russia, India** and **the EU** have succeeded in sending missions to Mars regarded as the **most complex space mission.**
- **India** became the first Asian country to have successfully launched its Mars orbiter mission **Mangalyaan** which entered the orbit of the red planet in 2014.
- **India** also became the **first country** to have **entered the Martian orbit in its first attempt.**
- China in recent years has emerged as a major space power with manned space missions (**Shenzhou**) and landing a rover in the dark side of the moon (**Chang'e-4**).
- It is currently building a space station of its own, named **Tiangong.**

6) TNF-related apoptosis-inducing ligand

About

- In the field of cell biology, TNF-related apoptosis-inducing ligand (TRAIL) is a protein functioning as a ligand that induces the process of **cell death** called **apoptosis.**

- TRAIL is a **cytokine (proteins for cell signaling)** that is produced and secreted by most normal tissue cells.
- It causes apoptosis primarily in tumor cells, by binding to certain death receptors.
- It has triggered many preclinical cancer treatment studies the world over.
- While the anti-tumour activity of TRAIL in preclinical studies had been strong, in clinical trials, the results were so far unsatisfactory as cancer cells, when exposed long-term, seem to acquire resistance against TRAIL.
- The next round of research has been to find chemicals that can reverse resistance and increase sensitivity of cancer cells to TRAIL.

Why in News?

- Researchers from the Indian Institute of Technology, Madras, have shown that the active compound from the common household spice **turmeric — curcumin** — can enhance cancer cell death.
- They found that non-toxic concentrations of curcumin can significantly **increase the efficiency of TRAIL-induced cell death.**
- Curcumin is known to inhibit carcinogenesis and induce apoptosis in various cancer cells.

7) First indigenous Pneumonia vaccine

What is Pneumonia?

- Pneumonia is an infection that **inflames the air sacs in one or both lungs.**
- The air sacs may fill with fluid or pus, causing cough with phlegm or pus, fever, chills, and difficulty breathing.
- A variety of organisms, including **bacteria, viruses and fungi**, can cause pneumonia.
- Pneumonia can range in seriousness from mild to life-threatening.

- It is most serious for infants and young children, people older than age 65, and people with health problems or weakened immune systems.
- The germs that cause pneumonia are **contagious.** Both **viral and bacterial pneumonia** can spread to others through inhalation of airborne droplets from a sneeze or cough. One can contract fungal pneumonia from the environment. However, it doesn't spread from person to person.
- **Vaccines** are available to prevent some types of pneumonia and the flu.

Why in News?

- The **Drug Controller General of India (DCGI)** has approved the **first fully indigenously developed conjugate vaccine for pneumonia** developed by the Serum Institute of India Pvt. Ltd, Pune.

About the vaccine

- This **Pneumococcal Polysaccharide Conjugate Vaccine** will be used for active immunisation against invasive disease and pneumonia caused by "**streptococcus pneumonia**" (bacteria) in infants.
- The vaccine would be sold under the name '**Pneumosil**'.
- The vaccine will provide effective and long-lasting protection for children against pneumococcal diseases.
- Till now, India has been fully dependent on Pneumococcal Conjugate Vaccine manufactured by foreign manufacturers which are available at very high prices.

What are conjugate vaccines?

- Antigens of some pathogenic bacteria do not elicit a strong response from the immune system, so a vaccination against this weak antigen would not protect the person later in life.
- In this case, a conjugate vaccine is used in order to invoke an immune system response against the weak antigen. In a conjugate vaccine, the **weak antigen is covalently attached to a strong**

antigen, thereby eliciting a stronger immunological response to the weak antigen.

- Conjugate vaccines target several leading causes of vaccine-preventable deaths.

About DCGI

- Drugs Controller General of India is a department of the Central Drugs Standard Control Organisation (CDSCO).
- DCGI is responsible for approval of licenses of specified categories of Drugs such as blood and blood products, I. V. Fluids, Vaccine and Sera.

8) Hope Mission

What's in the news?

- The **United Arab Emirates (UAE)** has successfully launched its Hope Probe to **Mars** from Japan's Tanegashima Space Center.
- It is the **Arab world's first interplanetary mission.**

About the Mission

- Hope will spend a full Martian year, or nearly two Earth years, **orbiting Mars** and studying its atmosphere.
- It aims to provide a **complete picture of the Martian atmosphere for the first time**, studying daily and seasonal changes.
- To develop and build the Hope Probe, Emiratis and Dubai's **Mohammed Bin Rashid Space Centre (MBRSC)** worked with U.S. educational institutions.

United Arab Emirates

- The United Arab Emirates is a federation of seven states: Abu Dhabi, Dubai, Sharjah, Umm al-Qaiwain, Fujairah, Ajman and Ra's al-Khaimah.
- Four-fifths of the UAE is desert.
- Each emirate is governed by a ruler; together, they jointly form the Federal Supreme Council. One of the rulers serves as the President of the UAE.

- The UAE also has the distinction of hosting the **largest number of Indian migrants at 3.31 million.**

UAE's space venture

- The UAE has sought to diversify its economy in recent years, as market shocks and global trends highlighted the vulnerability of oil-dependent Gulf nations.
- Emirati leaders intend for the Hope probe to serve as a disruptive event, accelerating the country toward a knowledge-based economy that retains world-class researchers to work in scientific and technological fields.

9) Spear Phishing

What is Spear Phishing?

- Spear phishing is an **email or electronic communications scam** targeted towards a specific individual, organization or business.
- It is a targeted attempt to **steal sensitive information** such as account credentials or financial information from a specific victim, often for malicious reasons.
- Spear-phishing can also trick people into downloading malware or malicious codes after people click on links or open attachments provided in messages.

How is it done?

- This is achieved by acquiring personal details on the victim such as their friends, hometown, employer, locations they frequent, and what they have recently bought online.
- The attackers then disguise themselves as a trustworthy friend or entity to acquire sensitive information, typically through email or other online messaging.



Spear-Phishing vs. Phishing

- Both are online attacks on users that aim to acquire confidential information.
- **Phishing** is a broader term for **any attempt to trick victims into sharing sensitive information** such as passwords, usernames, and credit card details for malicious reasons.
- Unlike spear-phishing attacks, **phishing attacks are not personalized to their victims**, and are usually **sent to masses** of people at the same time.
- **Spear-phishing** attacks target a **specific victim**, and messages are modified to **specifically address that victim**, purportedly coming from an entity that they are familiar with and containing personal information.
- Spear-phishing requires more thought and time to achieve than phishing. Spear-phishing attackers try to obtain as much personal information about their victims as possible to make the emails that they send look legitimate and to increase their chance of fooling recipients.
- Because of the personal level of these emails, it is more difficult to identify spear-phishing attacks than to identify phishing attacks conducted at a wide scale.

Why in News?

- Twitter has confirmed that spear phishing was the cause of the recent cyber-attack, in which a series of high-profile Twitter accounts were hacked and used to dupe other users to

transfer bitcoins to the hackers' account.

- Attackers targeted specific employees who had access to account support tools of the social media platform.

10) Solar Orbiter (Solo) Mission

About the Mission

- Solar Orbiter is an international collaboration between the **European Space Agency (ESA)** and **NASA**, to study the **Sun**.
- Solar Orbiter was launched to space aboard the **US Atlas V 411** rocket from NASA's spaceport in Cape Canaveral, Florida on 10 February 2020.
- Solar Orbiter carries a set of ten instruments for **imaging the surface of the Sun** and studying the environment in its vicinity.
- The spacecraft's objective is to capture the **first images of the sun's Polar Regions**.
- The spacecraft will travel around the Sun on an elliptical orbit that will take it as close as 42 million km away from the Sun's surface, about a quarter of the distance between the Sun and Earth.

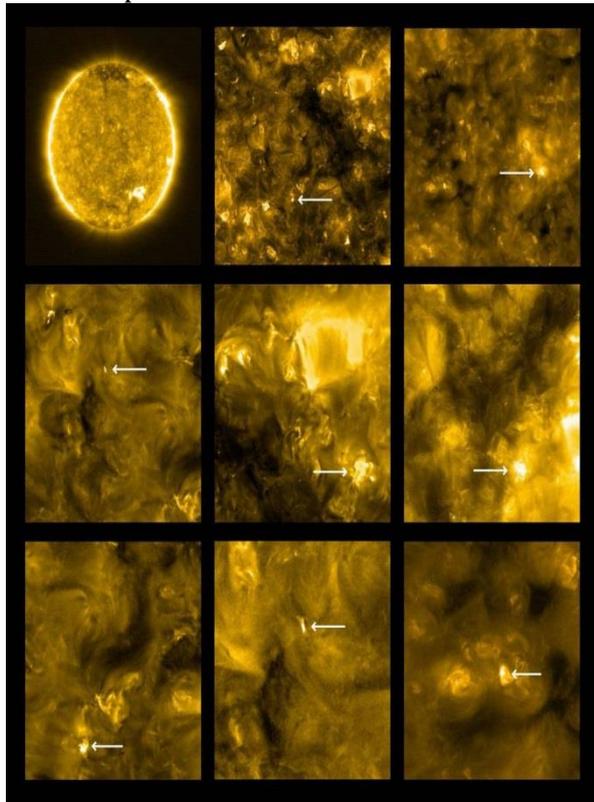
Significance

- The orbit will allow the Solar Orbiter to see some of the never-before-imaged regions of the Sun, including the poles, and shed new light on **what gives rise to solar wind**, which can affect infrastructure on Earth.
- The Orbiter will help scientists **understand the sun's dynamic behaviour**. With more data on the global magnetic field of the star, scientists would be able to forecast space weather events.

Why in News?

- The first images from ESA/NASA's Solar Orbiter are now available to the public, including the closest pictures ever taken of the Sun.

- Among the novel insights from the images are views of mini-flares dubbed "campfires".



What are 'campfires'?

- The campfires are the miniature versions of solar flares, at least a million times smaller.
- It's possible they are mini-explosions known as **nanoflares** – tiny but ubiquitous sparks theorized to help heat the Sun's outer atmosphere, or corona, to its temperature 300 times hotter than the solar surface.

11) Radio-Frequency Identification

What is RFID?

- Radio-Frequency Identification (RFID) is a type of passive wireless technology that uses **radio waves** to read and capture information stored on a tag attached to an object. A tag can be read from up to several feet away and **does not need to be within the direct line-of-sight** of the reader to be tracked.

- RFID tags can store a range of information from one serial number to several pages of data.

Applications of RFID

- **Product Tracking** – RFID tags are increasingly used as a cost-effective way to track inventory and as a substitute for barcodes.
- **Toll Road Payments** – Highway toll payment systems use RFID technology to electronically collect tolls from passing cars. Instead of stopping at the toll booth, cars pass directly through the Pass lane and the toll is automatically deducted from a pre-paid card.
- **Passports** – A number of countries, including Japan, the United States, Norway, and Spain incorporate RFID tags into passports to store information (such as a photograph) about the passport holder and to track visitors entering and exiting the country.
- **Libraries** – Libraries use RFID tags in books and other materials to track circulation and inventory, store product information (such as titles and authors), and to provide security from theft.
- **Shipping** – Large shipments of materials, such as retail goods, often utilize RFID tags to identify location, contents, and movement of goods.
- **Health care** – In health care and hospital settings, RFID technologies include the following applications: Inventory control, equipment tracking, out-of-bed detection and fall detection, ensuring that patients receive the correct medications and medical devices, etc.

Why in News?

- Indian Railways is on a mission to RFID Tag all wagons by December 2022.

Significance

- Using RFID devices will be easier for the railways to know the exact position

of all the wagons, locomotives and coaches.

- While the RFID tag will be fitted in the rolling stock, trackside readers will be installed at stations and key points along the tracks to read the tag from a distance of about two meters and transmit the wagon identity over a network to a central computer.
- In this way, each moving wagon can be identified and its movement tracked.
- With the introduction of RFID, the issue of shortage of wagons, locomotives and coaches is expected to be addressed in a more transparent and expeditious manner.

12) Raman effect

What is the Raman Effect?

- Raman Effect is the **change in the wavelength of light** that occurs when a **light beam is deflected by molecules**.
- When a beam of light traverses a dust-free, transparent sample of a chemical compound, a small fraction of the light emerges in **directions other than that of the incident (incoming) beam**.
- Most of this scattered light is of unchanged wavelength. A small part, however, has **wavelengths different from that of the incident light**; its presence is a result of the Raman Effect.
- The phenomenon is named after Indian physicist Sir C.V. Raman, who first published observations of the effect in **1928**. Austrian physicist Adolf Smekal theoretically described the effect in 1923.

Why does this happen?

- **Light** consists of particles called **photons**, whose **energy is directly proportional to the frequency** with which they travel.
- When they strike molecules in a medium at high speeds, they bounce back and scatter in different directions

depending on the angle with which they hit the molecules.

- Most of these scatterings are **elastic** — the photons retain their energy and are deflected with the same speed as they were traveling with.
- However, once in a while, the molecules of the medium light pass through, absorb or give energy to photons that strike them.
- The light particles then bounce with decreased or increased energy, and thus, frequency. When frequency shifts, so does wavelength. This means that light refracted from a body can appear to be of a different colour.

Raman spectroscopy

- The effect is **extremely negligible** when measured and occurs in very low amounts.
- But each medium contains a **specific molecular scattering signature**, related to the particular molecule and its numbers.
- This gave birth to the field of Raman spectroscopy, which has extensive applications around the globe, and across fields.
- It can help in determining chemical bonding structures, characterise materials, determine temperature, find out crystalline orientation, identify pharmaceutical chemicals, discover counterfeit drugs, identify pigments in old paintings and historical documents, and detect explosives using lasers from a distance.

Why in News?

- Scientists at the Mumbai-based Tata Memorial Centre have turned to Raman Spectroscopy to detect RNA viruses present in saliva samples.

About C.V.Raman

- C.V. Raman (**Sir Chandrasekhara Venkata Raman**) was born on November 7, 1888, Trichinopoly, Tamilnadu.
- His work was influential in the growth of science in India.

- He received the Nobel **Prize for Physics in 1930**, for his discovery which was eventually named as the **Raman effect or Raman scattering**.
- It was the first Nobel in Physics for a non-white person, and for an Indian scientist.
- He died on November 21, 1970 in Bangalore.

National Science Day

- India celebrates National Science Day on **28 February** every year since 1986 in honour of physicist C.V. Raman's discovery of the Raman Effect, which gave **Asia its first Nobel** in the Sciences in 1930.
- Every year, the day is celebrated with different themes to raise awareness about the importance of science in everyday life.

13) Herd Immunity

What is herd immunity?

- Herd immunity is the **indirect protection from a contagious infectious disease** that happens when a population is immune **either through vaccination or immunity developed through previous infection**.
- This means that even people who aren't vaccinated, or in whom the vaccine doesn't trigger immunity, are protected because people around them who are immune can **act as buffers** between them and an infected person.
- This breaks the chain of infection through the community ("herd"), and prevents it from reaching those who are the most vulnerable.
- Once herd immunity has been established for a while, and the ability of the disease to spread is hindered, the disease can eventually be eliminated. This is how the world eradicated **smallpox**, for example.

What are the challenges in creating herd immunity?

- The more infectious a disease, the greater the population immunity needed to ensure herd immunity.
- Example: **Measles** is highly contagious and one person with measles can infect up to 18 other people. This means that around 95% of people need to be immune in order for the wider group to have herd immunity.
- **Natural herd immunity** – achieved through infection rather than vaccination – can be challenging to induce through unchecked infection as there would be a very high rate of serious illness and death, with health systems overwhelmed well beyond their surge capacity, even in high-income countries.
- This is why herd immunity is generally pursued through vaccination programmes.
- Even when vaccines are available, it is not always possible to achieve herd immunity for very long. Some viruses, such as seasonal flu, mutate frequently, evading the body's immune response. So immunity **doesn't always last forever**.

Herd immunity for SARS-CoV-2

- The new coronavirus has a **lower infection rate than measles**, with each infected person passing it on to two or three new people, on average. This means that herd immunity should be achieved when around **60% of the population** becomes immune to COVID-19.

Why in News?

- A new study published in *The Lancet* has concluded that herd immunity against Covid-19 is **difficult to achieve** based on estimates of seroprevalence for the entire Spanish population.

About the study

- It is a large-scale sero-epidemiological study, and concluded that **just five per cent of the Spanish population has developed antibodies** in response to SARS-CoV-2, the virus that causes

Covid-19, which implies that an estimated 95 per cent continues to be susceptible to the virus.

Implications of the study

- This study strengthens the line of argument that in the absence of treatment or a vaccine against Covid-19, achieving herd immunity at this stage is not possible.
- Herd immunity is difficult to achieve without accepting the **collateral damage of many deaths** in the susceptible population and **overburdening of health systems**.
- Any proposed approach to achieve herd immunity through natural infection is not only **highly unethical** but also **unachievable**.

Reports and Indices

1) Global Multidimensional Poverty Index

What is the Global MPI Report?

- The Global Multidimensional Poverty Index (MPI) Report is prepared by the **United Nations Development Programme (UNDP)** and the **Oxford Poverty and Human Development Initiative**.
- The MPI reflects **both the incidence of multidimensional deprivation** (a headcount of those in multidimensional poverty) **and its intensity** (the average deprivation

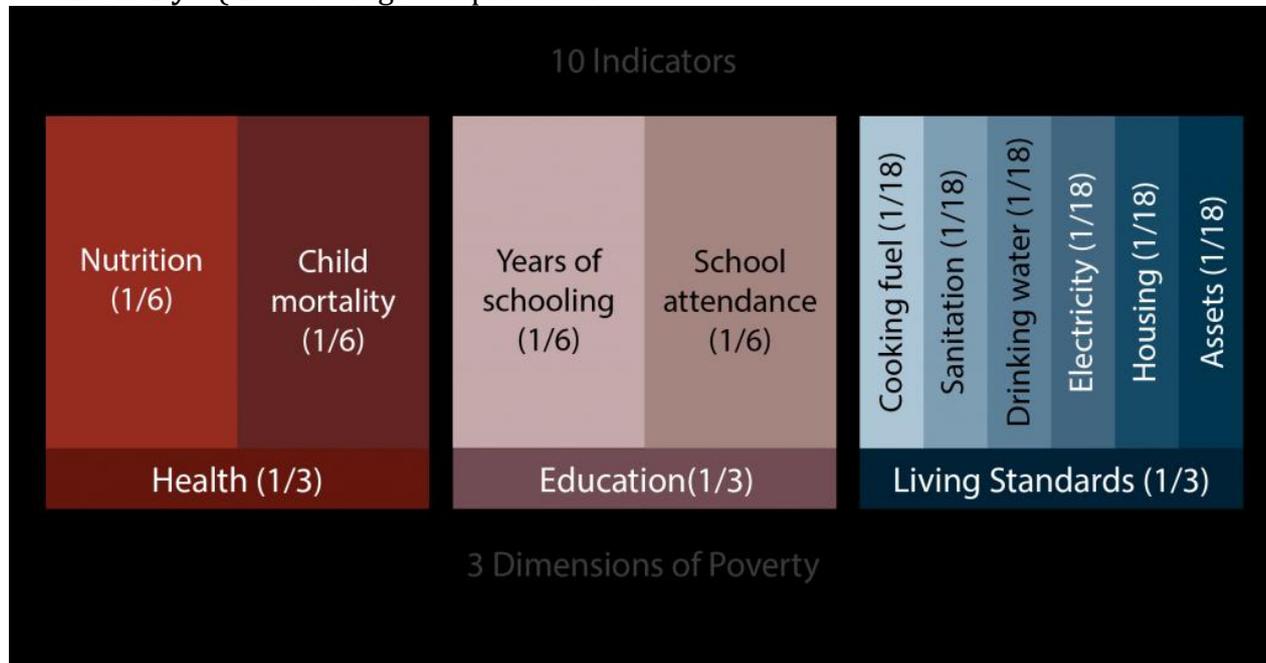
score experienced by poor people). The product of these two is MPI.

- The MPI offers a valuable complement to income-based poverty measures.

Indicators

- The MPI tracks deprivation across **three dimensions and 10 indicators**:

1. **Education** (year of schooling, child enrolment)
2. **Health** (child mortality, nutrition)
3. **Standard of living** (electricity, drinking water, sanitation, flooring, cooking fuel, assets).



- A person is multi-dimensionally poor if she/he is deprived in one third or more (means 33% or more) of the weighted indicators (out of the ten indicators).

Why in the news?

- UNDP has released the Global Multidimensional Poverty Index 2020 in association with the Oxford Poverty and Human Development Initiative.
- The global MPI 2020 compares acute multidimensional poverty for **107 countries in developing regions**.

- **Goal 1 of the Sustainable Development Goals (SDGs)** is to end poverty in all its forms and dimensions. The global MPI 2020 offers a tool to make progress towards this goal.

Highlights of the Report

- Across 107 developing countries and 5.9 billion people, **1.3 billion people—22 percent—live in multidimensional poverty**.
- **65 countries reduced their MPI value significantly in absolute terms.**

- The **countries with the fastest reduction in MPI value** in absolute terms were Sierra Leone, Mauritania and Liberia, followed by Timor-Leste, Guinea and Rwanda. The fastest, Sierra Leone (2013–2017), did so during the Ebola epidemic.
- **Children show higher rates of multidimensional poverty.** One in three children is poor compared with one in six adults.
- About 84 percent of multidimensionally poor people live in **Sub-Saharan Africa** (558 million) and **South Asia** (530 million). Two-thirds of multidimensionally poor people live in middle-income countries.

Status in India

- **India** ranked **62nd** among 107 countries with an **MPI score of 0.123**.
- **27.9 per cent** of the population in India lived under multidimensional poverty.
- **India** remains the country that has the **largest reduction in the number of multidimensionally poor people**; lifting over 270 million persons out of poverty from 2005-6 to 2015-16.

COVID-19's impact

- While the study could not gauge the rise of worldwide poverty after the COVID pandemic, it has predicted that if left unaddressed the Covid crisis could set back global progress across 70 developing countries by 3-10 years.

Double Burden

- According to the study, it is the **poor and disadvantaged people** who suffer the most from **climate change and environmental degradation**, which is why they carry a **“double burden”**.
- They are the most vulnerable to environmental degradation, air pollution, lack of clean water, and unhealthy sanitation conditions and also the ones who don't get sufficient nutrition or proper housing.

2) State of Food Security and Nutrition 2020

About the Report

- The State of Food Security and Nutrition in the World (SOFI) is an annual flagship report, **jointly prepared by** the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the United Nations International Children's Fund (UNICEF), the World Food Programme (WFP) and the World Health Organization (WHO).
- It reports on progress towards ending hunger, achieving food security and improving nutrition and to provide in-depth analysis on key challenges for achieving this goal in the context of the 2030 Agenda for Sustainable Development.

Why in News?

- The State of Food Security and Nutrition in the World 2020 report was released.

Highlights of the Report

- Between 8.3 crore and 13 crore people globally are likely to go hungry this year due to the economic recession triggered by COVID-19.
- Estimates drawn from data available till March 2020 show that almost 69 crore people went hungry in 2019 — up by 1 crore in 2018.
- The heads of the five agencies warn that “five years after the world committed to end hunger, food insecurity and all forms of malnutrition, we are still off track to achieve this objective by 2030.”

On the rise

- The report underlines, **hunger continues to be on the rise since 2014** and the global prevalence of undernourishment, or overall percentage of hungry people, is 8.9%.
- **Asia** remains home to the greatest number of undernourished (38 crore). Africa is second (25 crore), followed by

Latin America and the Caribbean (4.8 crore).

- The report highlights that a **healthy diet costs more than ₹143 (or \$1.90/ day), which is the international poverty threshold**. The number of people globally who can't afford a healthy diet is at 300 crore people, or more than the combined population of the two most populous countries in the world, i.e. China and India.

3) Financial Stability Report

What is NPA?

- A non-performing asset (NPA) is a loan or advance for which the principal or interest payment remained overdue for a period of **90 days**.
- Banks classify NPAs further into Substandard, Doubtful and Loss assets.
 1. **Substandard assets:** Assets which have remained NPA for a period less than or equal to 12 months.
 2. **Doubtful assets:** An asset would be classified as doubtful if it has remained in the substandard category for a period of 12 months.
 3. **Loss assets:** Loss asset is considered uncollectible and of such little value that its continuance as a bankable asset is not warranted, although there may be some salvage or recovery value.
- With respect to agriculture, a loan granted for short duration crops will be treated as NPA, if the instalment of principal or interest thereon remains overdue for **two crop seasons**.
- A loan granted for long duration crops will be treated as NPA, if the instalment of principal or interest

thereon remains overdue for **one crop season**.

Capital to Risk-weighted Assets Ratio (CRAR)

- CRAR, also known as **Capital Adequacy Ratio (CAR)**, is the capital needed for a bank measured in terms of the assets or loans disbursed by the banks. It measures capital adequacy in terms of riskiness of the assets or loans given.

$CAR = (Tier\ I + Tier\ II + Tier\ III\ (Capital\ funds)) / Risk\ weighted\ assets$

- According to the RBI's capital adequacy norms, banks (including RRBs) are required to maintain CRAR at **9%**.

Why in News?

- The RBI has released its Financial Stability Report, July 2020.

Highlights of the report

- The gross non-performing assets (GNPA) ratio of scheduled commercial banks (SCBs) could worsen to as high as 14.7% by the end of the current financial year, from 8.5% in March 2020, if the adverse economic impact of the COVID-19 pandemic was 'very severe'.
- Observing that the capital to risk-weighted assets ratio of SCBs edged down to 14.8% in March, from 15% in September 2019, the RBI projected that this ratio could slide to 11.8% under the very severe stress scenario.
- Bank credit which had considerably weakened during the first half of 2019-20, slid down further to 5.9% by March 2020 and remained muted up to early June 2020.

Polity

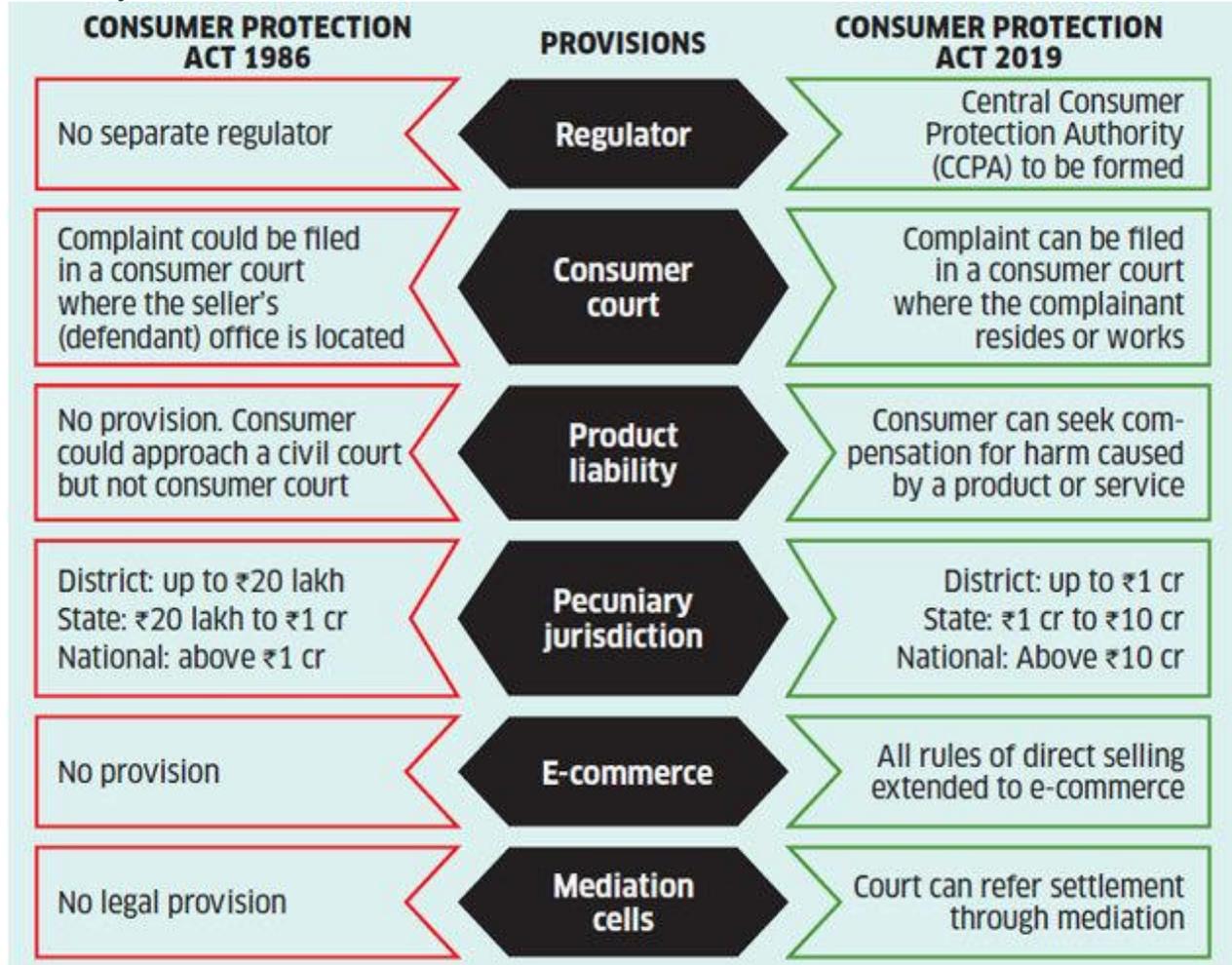
1) Consumer protection Act, 2019

About the act

- An Act to provide for protection of the interests of consumers and for the said purpose, to establish authorities for timely and effective administration and

settlement of consumers' disputes and for matters connected therewith or incidental thereto.

- It replaces the consumer protection act of 1986.



Key features of the act

- Definition of consumer:** A consumer is defined as a person who buys any good or avails a service for a consideration. It does not include a person who obtains a good for resale or a good or service for commercial purpose.
- It covers transactions through all modes including **offline, and online through electronic means, teleshopping, multi-level marketing or direct selling.**

- The following consumer rights have been defined in the Act, including the right to:
 - Be protected against the marketing of goods and services which are hazardous to life and property;
 - Be informed of the quality, quantity, potency, purity, standard and price of goods or services;
 - Be assured of access to a variety of goods or services at competitive prices; and
 - Seek redressal against unfair or restrictive trade practices.

- **Product liability clause:** A manufacturer or a service provider has to compensate a consumer if their good/service cause injury or loss to the consumer due to manufacturing defect or poor service. The most significant impact of this provision will be on **e-commerce** platforms as it also includes service providers under its ambit.
- **Central Consumer Protection Authority (CCPA):** To be set up by the central government to promote, protect and enforce the rights of consumers. It will regulate matters related to violation of consumer rights, unfair trade practices, and misleading advertisements.
- **Misleading advertisements:** The CCPA may impose a penalty on a manufacturer or an endorser of up to Rs 10 lakh and imprisonment for up to two years for a false or misleading advertisement. In case of a subsequent offence, the fine may extend to Rs 50 lakh and imprisonment of up to five years.
- **Consumer Disputes Redressal Commissions (CDRCs):** It will be set up at the district, state, and national levels. A consumer can file a complaint with CDRCs in relation to:
 1. Unfair or restrictive trade practices;
 2. Defective goods or services;
 3. Overcharging or deceptive charging; and
 4. The offering of goods or services for sale which may be hazardous to life and safety.
 - Appeals from a District CDRC will be heard by the State CDRC. Appeals from the State CDRC will be heard by the National CDRC. Final appeal will lie before the **Supreme Court**.
 - The Act also enables regulations to be notified on **E-commerce and direct selling** with focus on protection of interest of consumers.

What's in the news?

- The Consumer Protection Act, 2019 which replaces the Consumer Protection Act, 1986, comes into force from 20 July, 2020.

2) Disabled are entitled to same benefits of SC/ST quota

What's in the news?

- The Supreme Court recently confirmed that persons suffering from disabilities are also socially backward and **entitled to the same benefits of relaxation as Scheduled Caste/Scheduled Tribe candidates in public employment and education.**
- The apex court upheld a 2012 judgment of the Delhi High Court in Anamol Bhandari (minor) through his father/Natural Guardian v. Delhi Technological University.

About the case

- The decision came on a petition filed by Aryan Raj, a special needs person, against the Government College of Arts, Chandigarh. The college denied Mr. Raj relaxation in minimum qualifying marks in the Painting and Applied Art course.
- The college insisted that disabled persons too need to meet the general qualifying standard of 40% in the aptitude test, whereas SC/ST candidates were given a relaxation to 35%.
- Setting aside the college decision, the Supreme Court noted that Scheduled Caste/Scheduled Tribe candidates require 35% to pass in the aptitude test, the same shall apply so far as the disabled are concerned in future.

Significance of the judgement

- Hitherto, candidates with disabilities were often not able to get the benefit of reservation in education and employment because of not meeting the general standards. Now, public sector employers and colleges / universities will have to allow the same

relaxations to them as to SC / ST candidates.

Status of the disabled

- The Delhi High Court had cited the abysmally **low literacy and employment rates** among persons with disabilities.
- The 2001 Census put the **illiteracy rate** among the disabled at **51%** which was much higher than the general population figure.
- Also there was similar evidence of their **inadequate representation in employment** too.

Initiatives for welfare of Disabled Persons

- As per the Census 2011, there are 2.68 crore persons with disabilities (Divyangjans) in the country. The Government of India has started various initiatives to empower India's divyang population in many ways.

Rights of Persons with Disabilities Act, 2016

- The Act fulfills the obligations to the **United National Convention on the Rights of Persons with Disabilities (UNCRPD)**, to which India is a signatory and subsequently ratified the same on 1st October, 2007.

Disabilities covered

- Disability has been defined based on an evolving and dynamic concept.
- The types of disabilities have been increased from **existing 7 to 21** and the Central Government will have the power to add more types of disabilities.

Rights and entitlements

- All Government institutions of **higher education** and those getting aid from the Government are required to **reserve at least 5% of seats** for persons with benchmark disabilities.
- **4% reservation** for persons with benchmark disabilities is to be provided in **posts of all Government establishments** with differential

quotas for different forms of disabilities.

- **Incentives to employers in the private sector** are to be given who provide 5% reservation for persons with benchmark disability. **Special employment exchanges** for the PWD are to be set up.

Establishment of Authorities

- Broad based **Central & State Advisory Boards on Disability** are to be set up to serve as apex policy making bodies at the Central and State level.
- The Chief Commissioner for Persons with Disabilities and the State Commissioners will act as regulatory bodies and Grievance Redressal agencies and also monitor implementation of the Act.

Accessible India Campaign (Sugamya Bharat Abhiyan)

- It was launched in 2015 by the **Department of Empowerment of Persons with Disabilities (DEPwD)** as a nation-wide Campaign for **achieving universal accessibility** for Persons with Disabilities (PwDs). It aims at providing equal opportunity to PwDs to participate in all the aspects of life and live independently.
- The Accessible India Campaign comprises of the following three components:
 - **Built Environment Accessibility:** It aims to provide an accessible physical environment for everyone. To achieve this, measures need to be undertaken to eliminate obstacles and barriers to indoor and outdoor facilities including schools, medical facilities, and workplaces.
 - **Transportation System Accessibility:** It focuses on providing persons with disabilities an equal right to travel and use public and private transportation infrastructure with dignity and independence.
 - **Information and Communication Eco-System Accessibility:** Access to

information refers to all information. This can range from actions such as being able to read price tags, to physically enter a hall, to participate in an event, to read a pamphlet with healthcare information, to understand a train timetable, or to view webpages.

Other important initiatives

- The Ministry of Social Justice and Empowerment launched the **National Job Portal for Persons with Disabilities** (www.disabilityjobs.gov.in) in 2015. Divyangjans can apply through the portal for jobs, skill training, scholarships, education loans and self-employment loans.
- The **Swavlamban Health Insurance Scheme** for PwDs was launched with the objective of providing affordable health insurance to Persons with Disabilities.
- Another scheme of the DEPwD is the **Unique Disability Identification Project** started in 2016-17. The UDID card will be the single document of identification, verification of the Divyangjans for availing various benefits in future.
- Under the **Assistance to Disabled persons for purchasing/fitting of aids/appliances (ADIP) scheme**, funds are released to various implementing agencies to assist the needy persons with disabilities in procuring modern, standard aids and appliances.
- The **Deen Dayal Disabled Rehabilitation Scheme (DDRS)**, executed by DePwD provides grant-in-aid to NGOs/voluntary organisations for projects aimed at rehabilitation of Divyangjans.

Way Forward

- It is vital that **Rights of Persons with Disabilities Act, 2016**, which sought to address low literacy and employment rates by raising the quota for the disabled and envisaging

incentives for the private sector to hire them, is **fully given effect** so that this significant segment of the population is not left out of social and economic advancement.

3) Postal ballot facility

What is postal voting?

- In this facility, a voter can cast her vote remotely by recording her preference on the ballot paper and sending it back to the election officer before counting. A restricted set of voters can exercise postal voting.

Who can avail this facility?

- **Members of the armed forces** like the Army, Navy and Air Force, **members of the armed police force** of a state (serving outside the state), **government employees posted outside India and their spouses** are entitled to vote only by post.
- **Voters under preventive detention** can also vote only by post.
- **Special voters** such as the President of India, Vice President, Governors, Union Cabinet ministers, Speaker of the House and **government officers on poll duty** also have the option to vote by post.
- **Absentee voters:** Recently, the Law Ministry, at the Election Commission's behest, introduced a new category of 'absentee voters', who can now also opt for postal voting. These are voters employed in essential services and unable to cast their vote due to their service conditions. Currently, **officials of the Delhi Metro Rail Corporation, Northern Railway (Passenger and Freight) Services and media persons** are notified as absentee voters.

How are votes recorded by post?

- The **Returning Officer** is supposed to print ballot papers **within 24 hours of the last date of nomination withdrawal and dispatch them within a day.**

- This is done so that the ballot papers reach the concerned voter well before the polling date and she has enough time to send it back before the counting day.
- Postal ballot papers for members of the Armed Forces are sent through their record offices.
- For members of the armed police force of a state (serving outside the state), government employees posted outside India and their spouses, the ballot paper can be sent through **post or electronically**.
- For remaining categories ballot papers can be delivered personally or through the post.

Why in News?

- The Election Commission of India announced that postal ballot facility for electors above the age of 65 in the Bihar Assembly elections would not be implemented.
- Earlier, the Law Ministry notified the extension of postal ballots to electors over 65. However, several political parties had raised concerns over the decision.
- Political Parties argued that allowing those aged 65 and above to vote by postal ballot violates secrecy in voting as a large segment of the population is uneducated and they might seek assistance from others at numerous stages, ending up disclosing their preferred candidate.
- This also exposes them to administrative influence or influence by the Government or the ruling party.

4) Plea Bargaining

What is Plea bargaining?

- Plea bargaining refers to a person charged with a criminal offence **negotiating with the prosecution for a lesser punishment** than what is provided in law by pleading guilty to a less serious offence.

- It primarily involves pre-trial negotiations between the accused and the prosecutor. It may involve bargaining on the charge or in the quantum of sentence.

Background

- In India, the concept was not part of law until 2006. There has always been a provision in the Code of Criminal Procedure for an accused to plead 'guilty' instead of claiming the right to a full trial, but it is not the same as plea bargaining.
- Plea bargaining was **introduced in 2006 as part of a set of amendments to the CrPC as Chapter XXI-A, containing Sections 265A to 265L.**

When is it allowed?

- In India, plea bargaining can be initiated only by the accused and that to someone who has been charged sheeted for an offence that does not attract the death sentence, life sentence or a prison term above seven years can make use of the scheme.
- It is also applicable to private complaints of which a criminal court has taken cognisance.
- The categories of cases that **cannot be disposed** of through plea bargaining are those that involve **offences affecting the "socio-economic conditions" of the country, or committed against a woman or a child below the age of 14.**

Procedure

- The applicant should approach the court with a petition and affidavit stating that it is a **voluntary preference** and that he has understood the nature and extent of punishment provided in law for the offence.
- The court may permit the prosecutor, the investigating officer and the victim to hold a meeting for a "satisfactory disposition of the case". The outcome may involve payment of compensation

and other expenses to the victim by the accused.

- Once mutual satisfaction is reached, the court shall formalise the arrangement by way of a report signed by all the parties and the presiding officer. The accused may be sentenced to a prison term that is half the minimum period fixed for the offence. If there is no minimum term prescribed, the sentence should run up to one-fourth of the maximum sentence stipulated in law.

Rationale of Plea Bargaining

- The **Justice Malimath Committee on reforms of the criminal justice system** also endorsed the various recommendations with regard to plea bargaining. Some of the advantages are:
 - The practice would ensure speedy trial, end uncertainty over the outcome of criminal cases.
 - Save litigation costs and relieve the parties of anxiety.
 - It would also have a dramatic impact on conviction rates.
 - It may help offenders make a fresh start in life.
 - Reduction of pendency of cases and decongesting prisons can also be achieved by plea bargaining.

Major drawbacks of the concept

- Involving the Police in the plea bargaining process would invite coercion.
- By involving the court in the process the court impartially is impugned.
- Involving the victim in the process would invite corruption.
- If the plead guilty application of the accused is rejected then the accused would face great hardship to prove himself innocent.
- Courts are also very particular about the voluntary nature of the exercise, as poverty, ignorance and prosecution pressure should not lead to someone

pleading guilty of offences that may not have been committed.

Requirements

- To ensure fair justice, Plea Bargaining must encompass the following minimum requirements namely,
 - The hearing must take place in court.
 - The court must satisfy itself that the accused is pleading guilty knowingly and voluntarily.
 - Any court order rejecting a Plea Bargaining application must be kept confidential to prevent prejudice to the accused.

Why in News?

- Many members of the Tablighi Jamaat, a transnational Sunni Islamic missionary movement, have obtained release from court cases by means of plea bargaining.
- These cases have brought the focus on plea bargaining as a practice by which time consuming trials can be avoided.

5) Contempt of Court

What is Contempt of Court?

- Contempt of court is an act of disrespect or disobedience towards a judge or court's officers or interference with its orderly process.
- According to the **Contempt of Courts Act, 1971**, contempt of court can **either be civil contempt or criminal contempt.**

Civil contempt

- It means **wilful disobedience** to any judgment, decree, direction, order, writ or other process of a court or wilful breach of an undertaking given to a court.

Criminal contempt

- It means the publication (whether by words, spoken or written, or by signs, or by visible representations, or otherwise) of any matter or the doing of any other act whatsoever which
 - **scandalises or tends to scandalise**, or lowers or tends to lower the authority of, any court; or

- prejudices, or interferes or tends to interfere with, the due course of any judicial proceeding; or
- interferes or tends to interfere with, or obstructs or tends to obstruct, the administration of justice in any other manner.

Punishments for Contempt of Court

- The punishment for contempt of court is simple imprisonment for a term up to six months and/or a fine of up to ₹. 2,000.
- The Supreme Court in 1991 ruled that it has the **power to punish for contempt not only of itself but also of high courts, subordinate courts and tribunals functioning in the entire country.**
- The **High Courts** have been given special powers to punish contempt of subordinate courts, as per Section 10 of The Contempt of Courts Act of 1971.

What is not contempt of court?

- **Fair and accurate reporting of judicial proceedings** will not amount to contempt of court. Nor is any **fair criticism** on the merits of a judicial order after a case is heard and disposed of.
- In 2006, the government brought in an amendment to the Contempt of Courts Act of 1971 which now provides **“truth” as defence provided it is bona fide and in public interest.**

Constitutional Provisions

- **Article 129:** Grants **Supreme Court** the power to punish for contempt of itself.
- **Article 142(2):** Enables the Supreme Court to investigate and punish any person for its contempt.
- **Article 215:** Grants every **High Court** the power to punish for contempt of itself.

Why in News?

- The Supreme Court initiated a contempt of court case against public rights activist and lawyer Prashant Bhushan.

Need for contempt power

- Contempt power is needed
- To **punish wilful disobedience to court orders** (civil contempt), as well as interference in the administration of justice and overt threats to judges.
- To **insulate the institution from unfair attacks** and prevent a sudden fall in the judiciary’s reputation in the public eye.

Arguments against contempt of court

Democracy defeated

- The need to “respect the authority and dignity of the court” has **monarchical origins** from when the King of England delivered judgments himself.
- But over the centuries, judges playing this adjudicatory role, showing extreme deference to judges **does not sit well with the idea of a democracy.**

A wide scope of contempt

- The definition of criminal contempt in India is **extremely wide**, and can be **easily invoked.**
- Also, suo motu powers of the Court to initiate such proceedings only serve to complicate matters.
- Liberal exercise of suo motu powers amount to the Court signalling that it will not suffer any kind of critical commentary about the institution at all.

Against civil liberties

- A law for criminal contempt is completely **asynchronous with our democratic system** which recognises freedom of speech and expression as a fundamental right.
- **Justice V.R. Krishna Iyer** famously termed the law of contempt as having a vague and wandering jurisdiction, with uncertain boundaries; contempt law, regardless of public good, may unwittingly trample upon civil liberties.

Obsolete abroad

- Contempt has practically become **obsolete in foreign democracies,**

with jurisdictions recognising that it is an **archaic law**, designed for use in a bygone era, whose utility and necessity has long vanished. For example, England abolished the offence of “scandalising the court” in 2013.

- American courts also no longer use the law of contempt in response to comments on judges or legal matters.

Way Forward

- Examining an amendment to the Act to remove “scandalising the court” as a ground for contempt and **restrict contempt to only “wilful**

disobedience” of directions/judgments of the court can be considered.

- Besides needing to revisit the need for a law on criminal contempt, even the **test for contempt needs to be evaluated**. If such a test ought to exist at all, it should be whether the contemptuous remarks in question actually obstruct the Court from functioning.
- It should not be allowed to be used as a means to prevent any and all criticism of an institution.

International Relations

1) Kholongchhu project

What's in the news?

- **India and Bhutan** have signed a concession agreement on the 600 MW Kholongchhu Hydroelectric Project (KHEL) for work to start on it.
- The 600 MW run-of-the-river project is located on the lower course of the Kholongchhu River in eastern Bhutan's Trashiyangtse district.
- The hydroelectric project will be the **first-ever Joint Venture project** to be implemented in Bhutan under an Inter-Governmental Agreement (IGA) signed in 2014.

India-Bhutan relations

- Cooperation in the development of the hydropower sector in Bhutan is the **centerpiece of the mutually beneficial economic cooperation between Bhutan and India**. Hydropower projects are of paramount importance for both our countries as they will serve to further integrate our economies, bring further prosperity, and enhance energy security for both the countries.
- The Kholongchhu project is one of four additional projects agreed to in 2008, as a part of India's commitment to help Bhutan create a total **10,000 MW of installed capacity by 2020**.
- India recently completed the **720 MW Mangdechhu hydroelectric project** which was jointly inaugurated earlier in August 2019 by the prime ministers of India and Bhutan.
- Both sides are in the process of expediting the completion of other ongoing projects, including the **1200MW Punatsangchhu-1** and the **1020MW Punatsangchhu-2**.

2) TRIPS & Repurposed medicines

About TRIPS

- The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is an international legal agreement between all the member nations of the **World Trade Organization (WTO)**.
- The Agreement, which came into effect on 1 January 1995, is a comprehensive multilateral agreement on intellectual property.
- The TRIPS Agreement is often described as **one of the three "pillars" of the WTO**, the other two being trade in goods and trade in services.
- To facilitate the implementation of the TRIPS Agreement, the Council for TRIPS concluded with WIPO an **agreement on cooperation between WIPO and the WTO**, which came into force on 1 January 1996.

What is voluntary licensing?

- A voluntary license is an arrangement whereby a **patent holder may allow others** to manufacture, import, and/or distribute its patented drug.

What is compulsory licensing?

- Compulsory licenses are **authorizations given to a third-party** to make, use or sell a particular product or use a particular process which has been patented, **without the need of the permission of the patent owner**.
- The patent owner will still have rights over the patent, including a right to be paid compensation for copies of the products made under the compulsory licence.
- This concept is recognised at both national as well as international levels, with express mention in both **(Indian) Patent Act, 1970** and **TRIPS Agreement**. There are certain pre-requisite conditions which need to be fulfilled if a compulsory license is to be granted in favour of someone.

- Section 92 of the Indian Patent Act enables grant of compulsory licensing in circumstances of national emergency or extreme urgency.
- India granted its first compulsory licensing **2012 for Sorafenib**, an anticancer drug.

What constitutes a national emergency?

- The TRIPS Agreement does not specifically list the reasons that might be used to justify compulsory licensing. However, the Doha Declaration on TRIPS and Public Health confirms that **countries are free to determine the grounds for granting compulsory licences**, and to determine what constitutes a national emergency.

Why in the news?

- American biopharmaceutical company Gilead, who originally developed Remdesivir to fight ebola virus infection, has entered into **voluntary licensing agreement** with companies including Hetero and Cipla to provide technology transfer to manufacture Remdesivir for distribution in 127 countries.

What are repurposed medicines?

- Drug repurposing, also known as **drug repositioning**, is a **drug development strategy** predicated on the reuse of existing licensed drugs for new medical indications.
- For example, Remdesivir, an antiviral originally developed to treat the Ebola virus infection is now being used to treat COVID-19.

High costs of repurposed drugs

- When companies attempt to recover the fixed costs or sunk costs that went into the investment and development of the medicine, the final price becomes unreasonable.
- It raises a question if this high cost of repurposed drugs would benefit the majority of the people.

Legislations that regulate high pricing during crisis

- Flexibilities in the **TRIPS agreement** as mentioned above.
- **Indian patent laws** are armed with sufficient powers to ensure reasonable pricing for pharmaceutical products.
- Likewise, some countries are resorting to enabling legislation and procedural modifications of existing regulations to address affordability of anti-COVID-19 medicines. Eg: Canada passed the COVID-19 Emergency Response Act.
- **Agreeing upon voluntary licences with generic companies** can cause substantial reduction of medicine prices.

Way forward

- Back seating profit maximization, pharma companies should support the government to bear the burden of global pandemic. It is high time to **reconfigure the pricing strategies of the re-purposed medicines** for COVID-19 treatment.

3) 1267 sanctions committee

About the committee

- The 1267 sanctions committee of the UN, also known as the **ISIL (Da-esh) and Al Qaida sanctions committee**, oversees sanctions measures related to individuals, entities and groups.
- The committee can impose measures like asset freezes, travel bans and arms embargoes against designated individuals and entities.
- It is **one of the 14 sanctions committees under the UN**. Sanctions committees **comprise all 15 members of the Security Council**, and each committee is chaired by a non-permanent member on a rotational basis.
- All these sanctions committees (including the 1267 sanctions committee) undertake decisions by **consensus**. This requirement effectively gives a veto to all 15 members of the committee.

Why in News?

- The UN Security Council's 1267 ISIL and Al-Qaeda Sanctions Committee added the Tehreek-e-Taliban Pakistan (TTP) terror group's leader Noor Wali Mehsud for participating in the financing, planning and perpetrating acts on behalf of and in support of entities associated with al-Qaeda.
- The inclusion subjects the Pakistani national to an assets freeze, travel ban and arms embargo.

4) Broad-based Trade and Investment Agreement

About BTIA

- **India and the European Union (EU)** have been negotiating a free trade agreement (FTA), officially called a Broad-based Trade and Investment Agreement (BTIA) **since 2007** but have not been able to conclude it because of differences in some important areas.

Issues with BTIA

- The key differences arise over the **movement of professionals**. India is demanding greater and liberal market access for its service professionals.
- India is also seeking **data secure nation status** by the EU. India is currently not among the nations considered data secure by the EU.
- On the other hand, the EU is demanding **significant duty cuts** in automobiles, wines, spirits and dairy products, and a strong intellectual property regime.

'Data Secure Nation' status

- The lack of 'Data Secure Nation' status from the EU prevents flow of sensitive data, such as patient information for telemedicine, to India.
- The existing data protection laws in the EU (known as **General Data Protection Regulation (GDPR)**) allow such information to only flow into a country that has been designated as being data secure.

- The matter is particularly crucial as it will have a bearing on Indian IT companies wanting market access.

Why in News?

- Recently, Prime Minister Narendra Modi held talks with officials from the EU via video-conferencing.
- To revive talks on the BTIA that have been suspended since 2013, the two sides announced a "high level dialogue" between Commerce Minister Piyush Goyal and E.U. Trade Commissioner Phil Hogan to try and take the agreement forward.

Significance of BTIA

- Trade with India formed under 3% of the E.U.'s global trade, which is far below what was expected of the relationship.
- Conversely, the E.U. is **India's largest trading partner and investor**, and accounts for 11% of India's global trade, while India is the E.U.'s ninth biggest trading partner.

5) Chabahar port

About Chabahar port

- Chabahar port, which is being jointly developed by **India, Iran and Afghanistan**, is located in south Iran on the **Gulf of Oman**.
- Pakistan's **Gwadar port** is about 70 kilometers to the west along the coast.
- Afghanistan is connected to the chabahar port through its land border with Iran, and India via the sea.
- Thus, the port is readily accessible for all three countries and acts to facilitate trade among them.
- In 2003, India, Afghanistan and Iran, under the **North-South Transport Corridor framework**, signed the Chabahar port agreement, allowing all three countries to utilize the Chabahar port as a trade hub.
- The first phase of Chabahar port was inaugurated in December 2017.

Strategic significance of the Chabahar port

- It is an important pillar of Indian foreign policy aimed at finding shorter routes for its exports and imports, countering China's influence in the Indian Ocean region, and circumventing Pakistan's Gwadar port.
- Chabahar is the **only port outside of Pakistan that connects Afghanistan to the sea.**
- The port will also connect India to Central Asian countries that are also major energy producers in the region.

Chabahar-Zahedan Railway project

- It was expected that in addition to the investment in Chabahar Port, India could also play a more crucial role in funding and constructing a strategic transit route from **Chabahar to Zahedan** along the Iran-Afghanistan border and from **Zahedan to Sarakhs** at the border with Turkmenistan.
- During the visit of Prime Minister Narendra Modi to Tehran in 2016 an agreement was inked with the Iranian President Hassan Rouhani and Afghanistan President Ashraf Ghani.
- Under the agreement, Indian Railways Construction Ltd (IRCON) had **promised assistance to the Chabahar-Zahedan railway line project besides financing worth \$1.6 billion.**
- The railway line project was a part of India's commitment to the **trilateral agreement with Afghanistan and Iran** to construct an alternate trade route to Afghanistan and Central Asia.

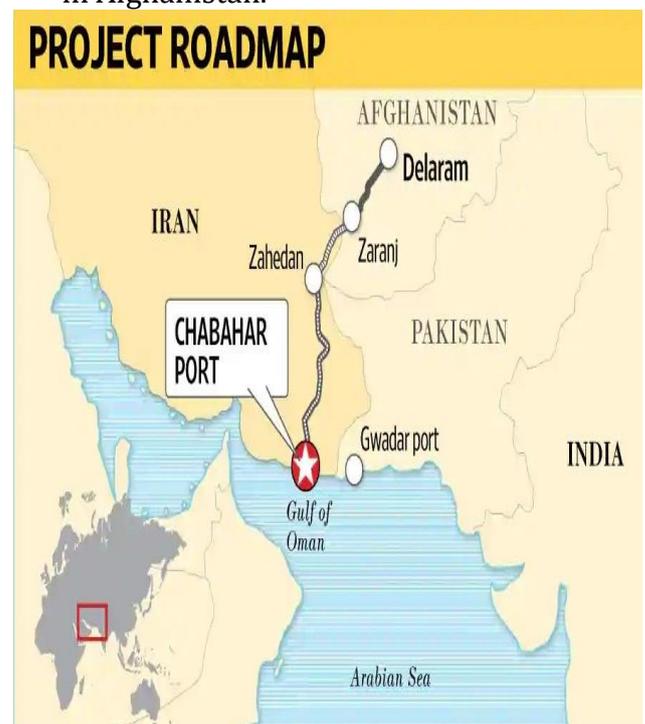
What is the issue?

- However, the project didn't take off as the United States imposed sanctions on Iran.
- The U.S. had provided a **sanctions waiver** for the Chabahar port and the rail line to Zahedan, but it has been difficult to find equipment suppliers and partners due to worries they could be targeted by the U.S.

- India has already **"zeroed out" its oil imports from Iran** due to U.S. sanctions.

Why in News?

- In a move that could hamper the relationships with India, Iran has decided to continue with the construction of a railway line from Chabahar port to Zahedan **without any support from India citing delay in funding as the reason.**
- Iran has taken the measure after four years since the project was finalised as part of a broader trilateral agreement.
- Iran government also inaugurated the track-laying process for the 628 km Chabahar-Zahedan line, which will be extended to **Zaranj** across the border in Afghanistan.



How does it impact trade relations?

- India has been out of the project at a time when Iran is seeking to finalise a **25-year economic and security partnership with China.** The deal between Iran and China is worth \$400 billion.
- The deal can prove to be a precursor to China's expansion in various sectors of Iran including banking,

telecommunications, ports, railways and numerous other projects.

- In lieu of the deal, China will have access to heavily discounted supply of Iranian oil regularly for the next 25 years.
- Iran has remained a strategic partner for India, this deal comes as a blow for India's trade engagement with the country. Amid India's recent standoff with China, this would further worsen the relationship between the two neighboring countries.

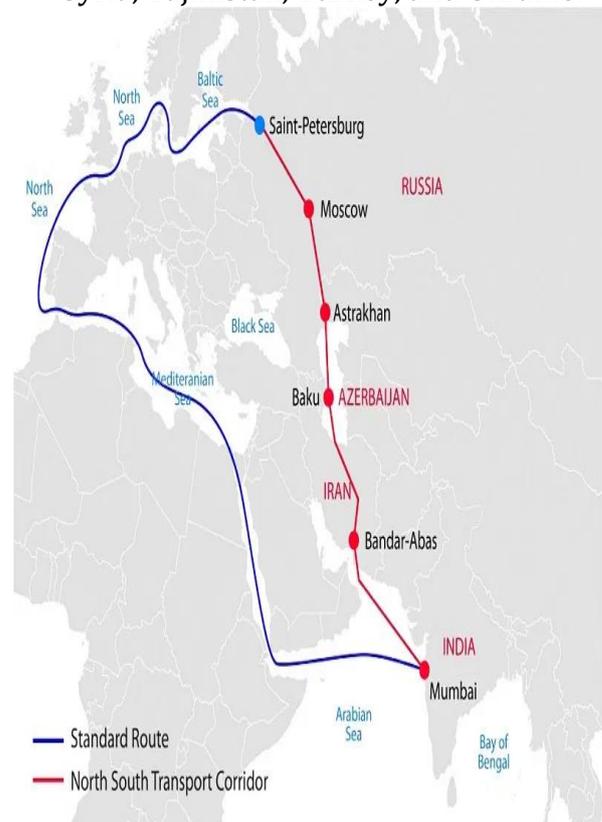
What are the implications of the new agreement?

- At a time when the U.S. is targeting Iran and China through a host of economic measures, both are taking their partnership to a new level through the \$400-billion long-term agreement.
- It is a long-term strategic partnership agreement with energy, economic, logistical and military aspects.
- While for Iran, whose oil sales plummeted after President Donald Trump unilaterally pulled the U.S. out of the **Iran nuclear deal** in May 2018 and reimposed sanctions on the country, this agreement could be an economic lifeline, China could enhance its strategic influence in a region where the U.S. has built a strong presence since the Second World War.
- Iran has a very crucial place in **China's Belt and Road Initiative** (to improve connectivity, trade, communication, and cooperation between the countries of Eurasia). China always wanted to bring Iran on board. As the Americans pursued the **policy of 'maximum pressure'** against Iran and left Iran under extraordinary privation and deprivation, it is now open to the Chinese initiative.

Related information

About International North-South Transport Corridor (INSTC)

- INSTC is a land-and sea-based 7,200-km long network comprising rail, road and water routes that are aimed at reducing costs and travel time for freight transport in a bid to **boost trade between Russia, Iran, Central Asia, India and Europe.**
- It is a **joint initiative taken by India, Russia and Iran.**
- The 'Inter-Governmental Agreement on International "North-South" Transport Corridor' was signed by the three countries in St. Petersburg, Russia, in 2000.
- Since then, 11 more nations have joined the project: Armenia, Azerbaijan, Belarus, Bulgaria (observer status), Kazakhstan, Kyrgyzstan, Oman, Syria, Tajikistan, Turkey, and Ukraine.



Iran nuclear deal

- **The Joint Comprehensive Plan of Action (JCPOA)**, more commonly known as the **Iran nuclear deal**, was reached between Iran and six world powers known as the **P5+1** (China, France, Germany, Russia, the United

Kingdom, and the United States) in July 2015.

- According to this framework, Iran was mandated to **redesign, convert, and reduce its nuclear facilities** in order to lift all nuclear-related economic sanctions.
- The deal also allowed for the tracking of nuclear activities with robust transparency and inspections by the **International Atomic Energy Agency (IAEA)**.

U.S. withdrawal from JCPOA

- The US President Donald Trump unilaterally withdrew from the Iran nuclear deal in 2018, claiming it did not address Iran's ballistic missile programme or its roles in Middle Eastern conflicts.
- The US also re-imposed tough economic sanctions against Iran.
- Reacting to the US' withdrawal, Iran announced that it will breach its limits set on its nuclear activity by the 2015 deal.

6) Dispute settlement panels against India

Dispute settlement mechanism of WTO

- According to the procedure established by the WTO, the first step to resolve a trade dispute is engaging in the **consultation process**.
- If two trading partners having a dispute could not resolve at that level, one of them can ask for a settlement of the **Dispute Settlement Body (DSB)** for hearing. The General Council of the WTO convenes as the DSB.
- The DSB's ruling can be challenged at the **appellate body**, the highest court for global trade disputes.

WTO's Appellate Body

- The Appellate Body is a standing committee of **seven members** that presides over appeals against judgments passed in trade-related disputes brought by WTO members.

- Members of the Appellate Body have four-year terms.
- In the selection process, WTO members follow the **consensus principle**, which means that the nomination of the Appellate Body members can only proceed smoothly with the agreement of all the members of WTO.
- The Appellate Body **must have at least three sitting members** to hear an appeal.

Why in News?

- The WTO has set up two more dispute settlement panels, at the request of Japan and Taiwan, targeting import duties imposed by India on a number of Information and Communication Technology (ICT) products including mobile phones.

7) China's quadrilateral dialogue Belt and Road Initiative

- China's Belt and Road Initiative (BRI) aims to strengthen Beijing's economic leadership through a vast program of infrastructure building throughout China's neighbouring regions.
- Launched in 2013 by President Xi Jinping, the vast collection of development and investment initiatives would stretch from **East Asia to Europe**, significantly expanding China's economic and political influence.
- The plan was two-pronged: the **overland Silk Road Economic Belt** and the **Maritime Silk Road**. The two were collectively referred to first as the **One Belt, One Road initiative** but eventually became the Belt and Road Initiative.
- China's vision included creating a vast network of railways, energy pipelines, highways, and streamlined border crossings, both westward—through the mountainous former Soviet republics—and southward, to



- To date, **more than sixty countries**—accounting for two-thirds of the world’s population—have signed on to projects or indicated an interest in doing so.

What are the potential roadblocks?

- The Belt and Road Initiative has also stoked opposition. BRI projects are built using **low-interest loans** as opposed to aid grants. Some BRI investments have involved **opaque bidding processes** and **required the use of Chinese firms**. As a result, contractors have inflated costs, leading to cancelled projects and political backlash.
- Critics allege China could use “**debt-trap diplomacy**” to extract strategic concessions – such as over territorial

disputes in the South China Sea or silence on human rights violations.

India’s position

- India has tried to convince countries that the BRI is a plan to dominate Asia, warning of what some analysts have called a “**String of Pearls**” geo-economic strategy whereby China creates unsustainable debt burdens for its Indian Ocean neighbors in order to seize control of regional choke points.
- Meanwhile, India has provided its own development assistance to neighbors, most notably Afghanistan, where it has spent \$3 billion on infrastructure projects.

What is the CPEC project?

- China-Pakistan Economic Corridor (CPEC) refers to a clutch of major infrastructure works currently under

way in Pakistan, intended to **link Kashgar in China's Xinjiang province to Gwadar deep sea port** close to Pakistan's border with Iran.

- Several other road, rail and power projects are associated with the corridor, and the project seeks to expand and upgrade infrastructure across the length and breadth of Pakistan, and to widen and deepen economic ties with China.
- CPEC is **part of the larger Belt and Road Initiative**.
- CPEC was launched in 2015 when Chinese President Xi Jinping visited Pakistan and it now envisages investment of over USD 60 billion in different projects of development in Pakistan.



Significance

- The goal of CPEC is both to transform Pakistan's economy—by modernizing its road, rail, air, and energy transportation systems—and to connect the deep-sea Pakistani ports of Gwadar and Karachi to China's Xinjiang province and beyond by overland routes.
- This would reduce the time and cost of transporting goods and energy such as natural gas to China by circumventing

the Straits of Malacca and the South China Sea.

- The CPEC project is also strategically important for China. Currently, eighty percent of China's oil has to pass through the **Strait of Malacca**, a narrow stretch of water between the Indonesian island of Sumatra and the Malay Peninsula. In the event of a conflict, the Malacca Strait could easily be blocked by a rival nation, cutting off China from crucial energy resources. CPEC allows China to circumvent the Strait of Malacca and reduce its dependency on the strait.

India's position on CPEC

- India has been opposing the project as it **passes through Gilgit-Baltistan in Pakistan-occupied Kashmir (PoK)**, which New Delhi considers its own territory.
- India claims that the CPEC project encroaches on sovereignty and territorial integrity of the country.

Why in News?

- Recently, China convened a rare quadrilateral dialogue with the Foreign Ministers of **Afghanistan, Nepal and Pakistan**, pledging to strengthen cooperation among the four nations in dealing with the COVID-19 pandemic as well as boosting their economic recoveries, including through regional connectivity projects.
- China outlined several proposals at the meet, including for the four countries to cooperate under China's **Belt and Road Initiative**.
- China also proposed extending the **China-Pakistan Economic Corridor** to Afghanistan, as well as taking forward an economic corridor plan with Nepal, called the **Trans-Himalayan Multi-dimensional Connectivity Network**.

Art and Culture

1) Gurjara-Pratihara Empire

About

- The Gurjara-Pratiharas, or simply, the **Pratiharas (8th century CE - 11th century CE)** held their sway over **western and northern India**.
- The Pratiharas rose to fame in the late 8th century CE after **successfully resisting Arab invaders**.
- **Bhoja or Mihira Bhoja** (c. 836-885 CE, title: **Adivaraha**) was the most well-known king of this dynasty.
- The expansion of the Gurjara-Pratihara kingdom involved constant conflicts with other contemporary powers such as the **Palas** (eastern India) and the **Rashtrakutas** (southern India) known as the **tripartite struggle**.



Foreigners' account

- Primary literary sources for their history include the accounts of Arab merchants who visited India in this period like **Suleiman** (c. 9th century CE) and **al-Masudi** (visited Gujarat in 915-16 CE).
- All these writers refer to the Pratihara Kingdom as **al-Juzr** (derived from the Sanskrit Gurjara) and attest “to the great power and prestige of the

Pratihara rulers and the vastness of their empire”.

Art and Architecture

- The Pratiharas were known chiefly for their patronage of art, literature, sculpture and temple-building.
- The poet **Rajashekhara** was associated with Mahendrapala and Mahipala and left behind many works of note.
- The sculptural styles developed during the period were unique and remained an influence on later styles.
- The **Nagara** style of Hindu temple architecture received a big boost under their rule. According to this style, the temple was built on a stone platform with steps leading up to it, with many regional variations. This style became very popular in northern India in the following centuries.

Why in News?

- Natesa idol which was stolen from India in 1998 is set to be returned to India.
- The idol was originally from the **Ghateswara Temple, Baroli, Rajasthan** and it belonged to the 9th century **Pratihara style** of Rajasthan.

2) Shree Narayana Guru

About

- Sree Narayana Guru was born in **1856 C.E.** in **Thiruvananthapuram, Kerala**.
- He became one of the greatest proponents and re-evaluators of **Advaita Vedanta**, the **principle of non-duality** put forward by **Adi Shankara**.
- He is considered among the greatest social reformers and philosophers of Kerala and India.
- He led a reform movement in Kerala by **rejecting the caste system** and promoting new values of spiritual

freedom, social equality and upliftment of the downtrodden.

- Guru worked hard as a **social educationist** and condemned discrimination in the name of caste, creed and religion.
- He started the **Sree Narayana Dharma Paripalana (S.N.D.P) Movement** which established new schools and created new social idioms for Ezhavas of Kerala, who were a caste of toddy trappers and were considered to be untouchables. The movement also created a **public space for women**.
- His famous words “**one caste, one religion and one god for mankind**” worked as a fresh wave in the socio-cultural realm of Kerala.
- In his renowned work **Atmopadesa Satakam**, which consists of **one hundred verses of self-instruction**, the Guru proposes his **philosophy of egalitarianism**.

Why in News?

- The Ministry of Tourism has sanctioned the revival of the Shree Narayana Guru (Sivagiri Sree Narayana Guru Ashram - Aruvipuram-Kunnumpara Sree Subrahmanya - Chembazhanthi Sree Narayana Gurukulam) spiritual circuit under the **Swadesh Darshan scheme**.

About Swadesh Darshan

- Swadesh Darshan Scheme was launched by the **Ministry of Tourism** in 2014.
- **Objective:** To develop **theme-based tourist circuits** in the country. These tourist circuits will be developed on the principles of high tourist value, competitiveness and sustainability in an integrated manner.
- It is a **Central Sector Scheme** and efforts are made to achieve convergence with other schemes of Central and State Governments and also to leverage the voluntary funding available for Corporate Social

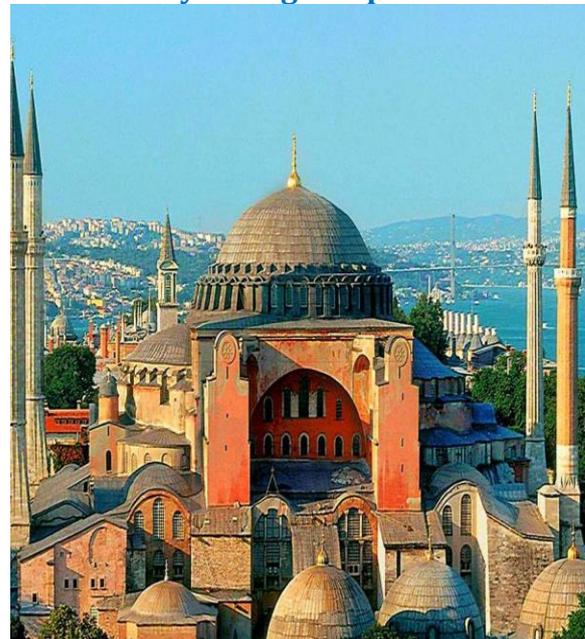
Responsibility (CSR) initiatives of Central Public Sector Undertakings and Corporate Sector.

The scheme has following objectives:

- Position tourism as a major engine of economic growth and job creation;
- Develop circuits having tourist potential in a planned and prioritized manner;
- Promote cultural and heritage value of the country to generate livelihoods in the identified regions;
- Follow community based development and pro-poor tourism approach;
- Create employment through active involvement of local communities;
- Projects under the scheme shall be under the following identified themes; **Eco-tourism, Wildlife, Buddhist, Desert, Spiritual, Ramayana, Krishna, Coastal, Northeast, Rural, Himalayan, Tribal and Heritage**.

3) Hagia Sophia

Brief history of Hagia Sophia



- The construction of this iconic structure in **Istanbul** started in **532 AD** during the reign of **Justinian I**, the ruler of the **Byzantine Empire**, when the city was known as **Constantinople**.

- The structure was originally built to become the **seat of the Patriarch of the Eastern Orthodox Church** and remained so for approximately 900 years.
- In **1453**, when Constantinople fell to **Sultan Mehmet II's Ottoman forces**, the Hagia Sophia was ransacked by the invading forces and **turned into a mosque** shortly after.
- The structure of the monument was then subjected to several changes where Orthodox symbols were removed and minarets were added to the exterior of the structure. For five centuries, it was a jewel in the Ottoman Sultan's crown.
- **Mustafa Kemal Atatürk**, the founding father of modern Turkey, converted the building into a **museum** in 1935 as part of his secularisation drive.
- Ever since, it has been one of Turkey's most visited monuments as well as a **symbol of Christian-Muslim co-existence**.

- It is also a component of a **UNESCO World Heritage site** called the **Historic Areas of Istanbul**.

Why in News?



- Turkey's highest court recently allowed for the conversion of the nearly 1,500 year-old Hagia Sophia from a museum into a mosque.
- The United States, Russia and Greece, along with UNESCO, had expressed concerns of the ruling.

Defence

1) Apache (AH-64E) helicopters

About Apache helicopters

- Apache is one of the **most advanced multi-role heavy attack helicopters** in the world.
- It is being made in the **US by Boeing**.
- Alongside the capability to shoot fire and forget anti-tank guided missiles, rockets and other ammunitions, it also has modern Electronic Warfare (EW) capabilities to provide versatility to helicopters in a network-centric aerial warfare.
- The helicopter is capable of delivering a variety of weapons which include **air-to-ground Hellfire** missiles, **70 mm Hydra** rockets and **air-to-air Stinger** missiles.
- Apache also carries one 30 mm chain gun, and fire control radar, which has a 360° coverage.
- These helicopters are **day/night, all weather capable** and have high agility and survivability against battle damage.



Background

- India has contracted **22 Apache helicopters** for **Indian Air Force (IAF)** from Boeing through the Foreign Military Sales programme of **the U.S.** government in 2015.
- These helicopters are set to replace the **Russian origin Mi 35 fleet** of the IAF that are now on the verge of being taken out of service.

Why in News?

- Boeing handed over the last of the five AH-64E Apache attack helicopters to the Indian Air Force (IAF), completing the contract for 22 Apaches.