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Current Affairs (CONSOLIDATION)

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(PART – I)

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Polity and Governance

Highlights

- SC Refuses to Restore 4G Services in J&K
- Epidemic Disease Act, 1897
- Vizag Gas Leak
- Strict vs Absolute Liability Principle
- Liquor Revenue for States
- Labour Laws Diluted
- Annulment of Election of MLA
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SC Refuses to Restore 4G Services in J&K

Why in News

Recently, the **Supreme Court refused to restore 4G services in Jammu and Kashmir** and ordered **setting up of a high-powered committee** to look into the contentions raised by petitioners against limited 2G services in the Union Territory.

- In August 2019, the Central government had suspended all modes of communications in the wake of **revocation of Jammu and Kashmir's special status, granted under Article 370**. Eventually, services were partially restored, with internet speed restricted to 2G.
- A plea was filed by '**Foundation for Media Professionals**' for restoration of high-speed internet in Jammu and Kashmir in view of the **Covid-19** situation.

Key Points

- **Balance of Human Rights and National Security:** The Court ruled that the special circumstances occur in the Union Territory which requires **delicate balancing of national security concerns and human rights**.
- **Reference to the Previous Judgement:** The bench also referred to its earlier decision in the **Anuradha Bhasin case (2020)** wherein it ordered **review of restrictions placed in J&K** in the wake of abrogation of Article 370 of the Constitution.
- **Constitution of Special Committee:**

- The bench ordered the constitution of a Special Committee, headed by the Union Home Secretary, **to determine the necessity of the continuation of limiting mobile Internet to 2G speed in the region**.
- The committee is expected to suggest the **alternatives regarding limiting the restrictions** to those areas where it is necessary and the **possible ways of allowing faster Internet (3G or 4G)** on a trial basis over certain geographical areas.

Need of 4G and National Security

- **Need of 4G in the wake of Covid-19 pandemic:**
 - **Health:** 4G services are necessary to provide access to the medical fraternity including patients to access latest information, advisories, and guidelines.
 - **Education:** The petition also argued that the schools across the country have shifted to online classes in view of the lockdown but lack of the 4G internet puts J&K students at a disadvantage.
 - **Trade and Business:** The lower internet service speed has also affected businesses dependent on the online mode.
- **National Security Concerns:**
 - An issue of infiltration of outside sources through the borders and destabilizing the integrity of the nation was raised during the hearing.
 - Even the J&K administration stated that high-speed internet will enable the spread of fake news/ rumours and transfer of heavy data files (audio/ video files) will become prevalent and may be utilised by terror outfits for incitement as also in planning attacks.

Note:



Anuradha Bhasin vs Union of India, 2020**Fundamental Rights Under Article 19:**

- The judgement declared that the **freedom of speech and expression** and the **freedom to practice any profession** or carry on any trade, business or occupation **over the medium of Internet** enjoys **constitutional protection under Article 19(1)(a) and Article 19(1)(g)** respectively.
- It also ruled that such freedom is **not absolute**, the restrictions imposed on it should be in consonance with the mandate under **Article 19(2) and Article 19(6) of the Constitution**.

Territorial Extent of Internet Suspensions:

- It had also directed authorities to pass internet suspension orders with respect to **only those areas, where there is absolute necessity of such restrictions to be imposed**.

Constitution of Review Committee:

- The Court also directed the government to **constitute a review committee** to review orders **leading to suspension and shutting down of Internet, mobile and fixed line telecommunication services**.
 - All orders leading to suspension and shutting down of Internet, mobile and fixed line telecommunication services are issued under **Rule 2 (2) of the Temporary Suspension of Telecom Services [Public Emergency or Public Service] Rules, 2017**.
 - These are the rules to be followed if the government intends to temporarily suspend telecom services in any part of the country.
 - These rules have been framed by the government on the basis of the powers conferred by **section 7 of the Indian Telegraph Act, 1885**.
- The Review Committee shall consist of **State as well as Central level officials** as the issue involved affects not only the UT of Jammu and Kashmir but also the whole country.

Epidemic Disease Act, 1897**Why in News**

Recently, the Union government directed States and Union Territories to invoke the **Epidemic Disease Act, 1897** to fight the **Covid-19 outbreak**.

- The colonial-era Act empowers the state governments to take special measures and prescribe regulations in an epidemic. It also defines penalties for disobedience of these regulations, and **provides for immunity for actions** taken under the Act **"in good faith"**.

Key Points**Aim:**

- The **Epidemic Diseases Act** aims to provide for the better prevention of the spread of dangerous epidemic diseases.
- Under the act, temporary provisions or regulations can be made to be observed by the public to tackle or prevent the outbreak of a disease.

Powers to Central Government:

- **Section 2A** of the Act empowers the central government to take steps to prevent the spread of an epidemic.
- **Health is a State subject**, but by invoking **Section 2 of the Epidemic Diseases Act**, advisories and directions of the Ministry of Health & Family Welfare will be enforceable.
- It allows the government to inspect any ship arriving or leaving any port and the power to detain any person intending to sail or arriving in the country.

Penalty for Disobedience:

- **Section 3** provides penalties for disobeying any regulation or order made under the Act. These are according to section 188 of the Indian Penal Code (Disobedience to order duly promulgated by a public servant).

Legal Protection to Implementing Officers:

- **Section 4** gives legal protection to the implementing officers acting under the Act.

Enforcement of the Act in the Recent Past:

- The Epidemics Diseases Act is routinely enforced across the country for dealing with outbreaks of diseases such as Swine Flu, Dengue.
- For Example, in 2009, to tackle the swine flu outbreak in Pune, Section 2 powers were used to open screening centres in civic hospitals across the city, and swine flu was declared a notifiable disease.

Background

- **Context:** The Epidemic Diseases Bill was introduced in 1897, during an outbreak of bubonic plague.

Note:



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- **Need:** Since the **existing laws were insufficient** to deal with various matters such as “overcrowded houses, neglected latrines and huts, accumulations of filth, insanitary cowsheds and stables, and the disposal of house refuse.
- **Special Powers:** The Bill had called for **special powers for governments of Indian provinces and local bodies**, including to check passengers of trains and sea routes.
- **Global Concern:** The government of the day was also concerned that several countries were alarmed by the situation in India. As **Russia** had speculated that the **whole subcontinent** might be infected due to plague.

Plague

- Plague is caused by the **bacteria Yersinia pestis** usually found in small mammals and their fleas.
- There are **two** main clinical forms of plague infection: **bubonic and pneumonic**.
 - Bubonic plague is the most common form and is characterized by **painful swollen lymph nodes or ‘buboes’**.
 - Pneumonic plague is a form of **severe lung infection**.
- Plague is **transmitted between animals and humans** by the bite of infected fleas, direct contact with infected tissues, and inhalation of infected respiratory droplets.
- **Antibiotic treatment is effective** against plague bacteria, so early diagnosis and early treatment can save lives.
- Currently, the three most endemic countries are the Democratic Republic of the Congo, Madagascar, and Peru.

Recent Changes in the Epidemic Diseases Act, 1897

- Recently, the **Cabinet amended the Act through an ordinance** stating that commission or abetment of **acts of violence against healthcare service personnel** shall be punished with imprisonment for a term of three months to five years, and with fine of Rs 50,000 to Rs 2 lakh.
- In case of causing grievous hurt, imprisonment shall be for a term of six months to seven years and a fine of Rs 1 lakh to Rs 5 lakh.

Vizag Gas Leak

Why in News

Recently, a gas leak has affected five villages in Visakhapatnam in Andhra Pradesh.

- The source of the gas leak was a **styrene plant** owned by South Korean electronics giant LG located in the area.
- The possible reason for gas leak is **stagnation and changes in temperature** inside the storage tank that could have resulted in **auto polymerization** (chemical reaction) and **vapourisation** of the styrene.

Styrene

Description:

- Styrene is an **organic compound** with the formula C_8H_8 .
- It is a **derivative of benzene (C_6H_6)**.
- It is stored in factories as a liquid, but evaporates easily, and has to be kept at temperatures under $20^\circ C$.

Sources:

- Styrene is found in vehicle exhaust, cigarette smoke, and in natural foods like fruits and vegetables.

Uses:

- It is a flammable liquid that is used in the manufacturing of polystyrene plastics, fiberglass, rubber, and latex.

Risk of Exposure:

- **Short Term Exposure:** It can result in respiratory problems, irritation in the eyes, irritation in the mucous membrane, and gastrointestinal issues.
- **Long-Term Exposure:** It could drastically affect the central nervous system and lead to other related problems like peripheral neuropathy. It could also lead to cancer and depression in some cases.
 - However, there is no sufficient evidence of an association between styrene exposure and an increased risk of leukemia and lymphoma.

State of Chemical Disaster Risk in India

- According to the **National Disaster Management Authority (NDMA)**, in the recent past, over 130 significant chemical accidents have been reported in the country.

Note:



- Further, there are thousands of registered hazardous factories and unorganised sectors dealing with numerous ranges of hazardous material posing serious and complex levels of disaster risks.
- There are over 1861 **Major Accident Hazard (MAH) units** spread across 301 districts and 25 states and three Union Territories in all zones of the country.
 - The Major Accident is defined as an incident involving loss of life inside or outside the site or ten or more injuries.
 - Further it also involves the release of toxic chemical or explosion or fire of spillage of hazardous chemical resulting in 'on-site' or 'off-site' emergencies leading to adverse effects to the environment.

Laws to Protect

Against Chemical Disasters in India

- **Laws Before and During Bhopal Gas Tragedy (1984):**
 - At the time of the **Bhopal gas tragedy**, the **Indian Penal Code (IPC) was the only** relevant law specifying criminal liability for such incidents.
- **Laws After Bhopal Gas Tragedy (1984):**
 - **Bhopal Gas Leak (Processing of Claims) Act, 1985:** It gives powers to the central government to secure the claims arising out of or connected with the Bhopal gas tragedy.
 - Under the provisions of this Act, such claims are dealt with speedily and equitably.
 - **The Environment Protection Act, 1986:** It gives powers to the central government to undertake measures for improving the environment and set standards and inspect industrial units.
 - **The Public Liability Insurance Act, 1991:** It is an insurance meant to provide relief to persons affected by accidents that occur while handling hazardous substances.
 - **The National Environment Appellate Authority Act, 1997:** Under this Act, the National Environment Appellate Authority can hear appeals regarding the restriction of areas in which any industries, operations or processes or class of industries shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986.
 - **National Green Tribunal, 2010 :** It provided for the establishment of the **National Green Tribunal** for effective and expeditious disposal of cases related

to environmental protection and conservation of forests.

- According to PRS legislative, any incident similar to the Bhopal gas tragedy will be tried in the National Green Tribunal and most likely under the provisions of the Environment (Protection) Act, 1986.
- If an offence is committed by a company then every person directly in charge and responsible will be deemed guilty, unless he proves that the offence was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such an offence.

Bhopal Gas Tragedy

- Post-midnight on December 3, 1984, **Methyl Isocyanate (MIC)** (Chemical formula- CH_3NCO or $\text{C}_2\text{H}_3\text{NO}$) leaked from the pesticide plant of Union Carbide (now Dow Chemicals), a Multinational Corporation (MNC), in Madhya Pradesh capital Bhopal.
 - It is estimated that about 40 tonnes of gas and other chemicals leaked from the Union Carbide factory.
 - Methyl Isocyanate is extremely toxic gas and if its concentration in the air touches 21ppm (parts per million), it can cause death within minutes of inhaling the gas.
- It is one of the worst chemical disasters globally and still continues to have its ill effects on the people of the affected areas.

Strict vs Absolute Liability Principle

Why in News

Recently, the **National Green Tribunal (NGT)** found **LG Polymers** prima facie liable under the **strict liability principle** for the **Vizag gas leak**.

- However, according to the lawyers, the term **absolute liability principle** should have been used instead.

Key Points

- The NGT directed the company to deposit an initial amount of Rs.50 crore and formed a fact-finding committee.

Note:

- The use of the term **strict liability** has been questioned by the lawyers because it was **made redundant in India by the Supreme Court in 1987**.
- **Strict Liability Principle:**
 - Under it, a party/company is **not liable** and **need not pay compensation** if a hazardous substance escapes its premises **by accident** or by an **'act of God' (Force Majeure)** among other circumstances.
- **Absolute Liability Principle:**
 - Under it, a party/company in a hazardous industry **cannot claim any exemption**. It has to **mandatorily pay compensation**, whether or not the disaster was caused by its negligence.
- The **National Green Tribunal Act of 2010** incorporates the **absolute liability** principle.
 - **Section 17** of the act mandates that the Tribunal should apply the absolute liability principle even if the disaster caused is an accident.
 - A hazardous enterprise is liable **even if the disaster is an accident** and not caused by the negligence of the company.

Background

- The Supreme Court, in the **M.C. Mehta vs Union of India 1987**, found **strict liability principle** inadequate to protect citizens' rights and **replaced it with the absolute liability principle**.
- This judgement came on the **Oleum gas leak case of Delhi in 1986**.
 - Oleum gas leaked from a fertiliser plant of **Shriram Food and Fertilisers Ltd.** complex at Delhi, causing damages to several people.
 - **Oleum** or **fuming sulfuric acid** refers to solutions of various compositions of sulfur trioxide in sulfuric acid or sometimes more specifically to disulfuric acid (also known as pyrosulfuric acid).
- The court found that strict liability which was evolved in an English case called **Rylands versus Fletcher, 1868**, **provided companies with several exemptions** from assuming liability.
- Absolute liability, on the other hand, provides them with no defence or exemptions and is part of **Article 21 (Right to Life)**.
 - **Article 21** declares that **no person shall be deprived of his life or personal liberty** except according to procedure established by law. This right is available to **both citizens and non-citizens**.

- The court wanted **corporations** to be made **fully liable for future undeserved suffering of innocent citizens** and held that a hazardous enterprise has an **absolute non-delegable duty** to the community.
- That time, India was still under the shock of the **Bhopal gas tragedy, 1984**.
 - **Methyl Isocyanate (MIC)** leaked from the pesticide plant of **Union Carbide** in the capital city of **Madhya Pradesh**.

Liquor Revenue for States

Why in News

Recently, the central government eased restrictions in the third phase of the nationwide **lockdown** and **allowed the sale of liquor**. The **Delhi government** announced a **70% hike** as **'Special Corona Fee'** in the price of liquor across categories.

- This shows the **importance of liquor to the economy of the states**.

Key Points

- **State's Earnings from Liquor**
 - Liquor contributes a **considerable amount to the exchequers** of all states and Union Territories (UTs) **except Gujarat and Bihar**, both of which have **enforced prohibition**.
 - **Andhra Pradesh announced prohibition** in 2019, however, sale of the liquor has been allowed with **"prohibition tax"**.
 - States levy excise duty on **manufacture and sale** of liquor.
 - States also **charge special fees** on imported foreign liquor, **transport fee**, and **label & brand registration charges**.
 - A few states like **Uttar Pradesh**, have imposed a **'special duty on liquor'** to collect funds for special purposes, such as maintenance of stray cattle.
- The **Reserve Bank of India** published the report **'State Finances: A Study of Budgets of 2019-20'** in September 2019.
 - It shows that **state excise duty** on alcohol accounts for around **10-15% of Own Tax Revenue** of a majority of states.
 - In fact, state excise duties on liquor is the **second or third largest contributor** to the category State's

Note:



Own Tax revenue; **Goods and Services Tax-GST** is the largest. This is the reason states have always wanted liquor kept out of the purview of GST.

- According to the report, in 2019-20, **state GST had the highest share, 43.5%, in states' Own Tax Revenue**, followed by **Sale Tax** at 23.5% (mainly on petroleum products which are out of GST), **state excise** at 12.5%, and **taxes on property and capital transactions** at 11.3%.

➤ State Excise

- Excise duty on production of few items including that on **liquor and other alcohol-based items** is imposed and collected by state governments and is called 'State Excise' duty.
 - **Excise duty** is basically a **production tax**. It is imposed on manufactured items in India that are meant for domestic consumption.
- Revenue receipts from state excise come mainly from commodities such as Country Spirits; Liquor; Foreign Liquors and Spirits; Medicinal and Toilet Preparations containing Alcohol, Opium etc; Opium, Hemp and other Drugs; Sales to Canteen Stores Depots.
- Apart from these, a substantial amount comes from **licences, fine and confiscation of alcohol products**.

➤ Sources of Revenue for States

○ Tax Revenue

- State's Own Tax Revenue
 - Taxes on **Income** (agricultural income tax and taxes on professions, trades, callings and employment)
 - Taxes on **Property and Capital Transactions** (land revenue, stamps and registration fees, urban immovable property tax)
 - Taxes on **Commodities and Services** (sales tax, state sales tax/VAT, central sales tax, surcharge on sales tax, receipts of turnover tax, other receipts, state excise, taxes on vehicles, taxes on goods and passengers, taxes and duties on electricity, entertainment tax, state GST, and "other taxes and duties")
- **Share in Central Taxes**
 - **Article 280** of the Indian Constitution requires the composition of the **Finance Commission** in every five years so that the states can get a reasonable part in the tax revenue of the union government.

○ Non-Tax Revenue

- These are collected by the governments for providing/facilitating any goods and service.
- It is compulsory to pay a part of the income earned/generated and amount of goods and services consumed as tax. However, non-tax revenue becomes payable only when services offered by the government are availed.
- Components:
 - **Interest:** It comprises interest of loans given to states and union territories for reasons like non-plan schemes and planned schemes with a maturity period of 20 years and also interest on loans advanced to **Public Sector Enterprises (PSEs)**, Port Trusts and other statutory bodies etc.
 - Dividends and profits, Petroleum license, Power supply fees, Fees for Communication Services, Broadcasting fees, Road, Bridges usage fees, Examination fees etc.

Labour Laws Diluted

Why in News

Amid the coronavirus-induced lockdown, an increasing number of states that include Uttar Pradesh, Madhya Pradesh, Rajasthan and Gujarat have pushed through **changes to their labour laws by way of ordinances or executive orders**.

- Since labour is a **concurrent subject** under the Constitution of India, states can frame their own laws but need the approval of the Central government.

Key Points

- The Uttar Pradesh government has approved an Ordinance **exempting businesses from the purview of all the labour laws** except few for the **next three years**.
 - The labour laws related to settling industrial disputes, occupational safety, health and working conditions of workers, and those related to trade unions, contract workers, and migrant labourers will become defunct.
 - However, laws related to bonded labour, deployment of women and children and timely payment of salaries will not be relaxed.

Note:

- The changes in the labour laws will **apply to both the existing businesses** and the **new factories** being set up in the state.
- Similarly, the Madhya Pradesh government has also suspended many labour laws **for the next 1000 days**. Few important amendments are:
 - **Employers can increase working hours in factories** from 8 to 12 hours and are also allowed up to 72 hours a week in overtime, subject to the will of employees.
 - The **factory registration now will be done in a day**, instead of 30 days. And the licence should be renewed after 10 years, instead of a year. There is also the provision of penalty on officials not complying with the deadline.
 - Industrial Units will be exempted from majority of the provisions of the **Industrial Disputes Act, 1947**.
 - Organisations will be able to keep workers in service at their convenience.
 - The Labour Department or the labour court will not interfere in the action taken by industries.
 - Contractors employing less than 50 workers will be able to work without registration under the **Contract Labour (Regulation and Abolition) Act, 1970**.
 - **Major relaxations to new industrial units** are:
 - Exempted from provisions on ‘**right of workers**’, which includes obtaining details of their health and safety at work, to get a better work environment which include drinking water, ventilation, crèches, weekly holidays and interval of rest, etc.
 - Exempted from the requirement of keeping registers and inspections and can change shifts at their convenience.
 - Employers are exempt from penalties in case of violation of labour laws.

Rationale Behind the Changes in Labour Laws

- States have begun easing labour laws to **attract investment** and encourage industrial activity.
- To protect the existing employment, and to provide employment to workers who have **migrated back** to their respective states.
- Bring about **transparency** in the administrative procedures and convert the challenges of a distressed economy into opportunities.

- To **increase the revenue of states** which have fallen due to closure of industrial units during Covid-19 lockdown.
- Labour reform has been a **demand of industries** for a long time. The changes became necessary as investors were stuck in a web of laws and red-tapism.

Issues Involved

- The labour law changes will **allow more factories to operate** without following safety and health norms and give a free hand to new companies to “keep labourers in service as per their convenience”.
- **Denying the rights of workers** is a violation of human and fundamental rights.
- It may create **insecurity** among the workers.
- The changes may lead to **desperate conditions** for workers.

Annulment of Election of MLA

Why in News

The **Gujarat High Court** has set aside the election of a BJP leader in 2017 on grounds of “**corrupt practice**” and “**manipulation of record**”.

Key Points

- The order passed on a petition, filed by the opposing Congress candidate, alleged that the returning officer had illegally rejected 429 votes received via postal ballot.
- The Court held election as void under Section 100(1) (d)(iv) of the **Representation of the People Act, 1951**.
- The observation gains relevance since the number of rejected votes (429) was more than the victory margin (327).
- The judgment also held that the **instructions of the Election Commission was not followed**, giving an unfair advantage to the winning candidate and thus materially affecting the election.

Election to the State Legislature

- The **Constitution of India as well as the Parliament of India** has laid down qualifications and disqualifications for being elected as a member of State Legislative Assembly and State Legislative Council.

Note:

Qualifications	Disqualifications
<ul style="list-style-type: none"> ➤ Constitutional Provisions <ul style="list-style-type: none"> ○ Citizenship of India. ○ Subscription to an oath or affirmation before the person authorised by the Election Commission. ○ Age must be not less than 25 years for the legislative assembly and not less than 30 years for the legislative council. ○ Need to possess other qualifications prescribed by Parliament. ➤ Parliamentary Provisions (RPA, 1951) <ul style="list-style-type: none"> ○ A person to be elected to the legislative assembly must be an elector for an assembly constituency in the concerned state. ○ A person to be elected to the legislative council must be an elector for an assembly constituency in the concerned state and to be qualified for the governor's nomination, he must be a resident in the concerned state. ○ He must be a member of a scheduled caste or scheduled tribe if he wants to contest a seat reserved for them. However, a member of scheduled castes or scheduled tribes can also contest a seat not reserved for them. 	<ul style="list-style-type: none"> ➤ Constitutional Provisions <ul style="list-style-type: none"> ○ Any office of profit under the Union or State government (except that of a minister or any other office exempted by the state legislature). ○ Unsound mind and stands so declared by a court. ○ Undischarged insolvent. ○ Not a citizen of India or has voluntarily acquired the citizenship of a foreign state or is under any acknowledgement of allegiance to a foreign state. ○ Disqualified under any law made by Parliament. ➤ Parliamentary Provisions through Representation of People Act (1951) <ul style="list-style-type: none"> ○ Must not have been found guilty of certain election offences or corrupt practices in the elections. ○ Must not have been convicted for any offence resulting in imprisonment for two or more years. But, the detention of a person under a preventive detention law is not a disqualification. ○ Must not fail to lodge an account of election expenses within the time. ○ Must not have any interest in government contracts, works or services. ○ Must not be a director or managing agent nor hold an office of profit in a corporation in which the government has at least 25% share. ○ Must not have been dismissed from government service for corruption or disloyalty to the state. ○ Must not have been convicted for promoting enmity between different groups or for the offence of bribery. ○ Must not have been punished for preaching and practicing social crimes such as untouchability, dowry and sati.
<p>Note: On the question of whether a member has become subject to any of the above disqualifications, the governor's decision is final. However, he should obtain the opinion of the Election Commission and act accordingly.</p>	

- We can study about various provisions on the same in the table given below.

Election Petition

- The **Constitution** lays down that no election to the Parliament or the state legislature is to be questioned except by an election petition presented to such authority and in such manner as provided by the appropriate legislature.
- **Since 1966**, the election petitions are triable by **High Courts alone**. Whereas the **appellate jurisdiction** lies with the **Supreme Court alone**.

- **Article 323 B** empowers the appropriate legislature (Parliament or a state legislature) to establish a tribunal for the adjudication of election disputes.
 - It also provides for the exclusion of the jurisdiction of all courts (except the special leave appeal jurisdiction of the Supreme Court) in such disputes.
 - So far, no such tribunal has been established.
- In **Chandra Kumar case (1997)**, the clause of the **exclusion of the jurisdiction of all courts in election disputes** was declared **unconstitutional** by the Supreme Court.

Note:

- Consequently, if at any time an election tribunal is established, an appeal from its decision lies to the high court.

Ordinance to Check APMCs: Gujarat

Why in News

Recently, Gujarat's state government has cleared the Gujarat Agricultural Produce Markets (Amendment) Ordinance 2020.

- It has ended the monopoly of state-run Agricultural Produce Market Committees (APMCs) and has allowed private entities to set up their own market committees or sub-market yards.

Key Highlights of the Ordinance

- **Restrictions on Jurisdiction:** The ordinance restricts the jurisdiction of APMCs to the **physical boundaries of their respective marketing yards** and they can **levy cess only on those transactions**, happening within the boundary walls of their marketing yard.
 - Earlier, an APMC had **jurisdiction over an entire or more than one taluka**.
 - Farmers and traders of a particular taluka had to **compulsorily sell their produce to their respective APMCs**.
 - Apart from that, APMCs **levied a cess on any transaction** that happened **within the marketing yard** of the APMC **or outside** it.
- **Opportunity to Private Markets:** The ordinance permits for setting up of private markets.
 - **Privately-owned old storages or warehouses** can be **converted** into a sub-market yard or a private market that can compete with the APMCs.
 - **Farmers can also set up** private markets themselves.
 - To **save the smaller APMCs** from the negative competition from private markets and a fair play, the state government plans to bring a **rule that will not allow the setting up of a private market within a five-kilometre radius of an existing APMC**.
 - Also to protect them, the government will **collect 20% cess from private players** and **reroute 14% of it back to the APMCs**.

- **Unified Single Trading Licence:** The ordinance provides traders with one unified single trading licence through which they can **participate in trading activities anywhere in the state**.
 - It will allow multiple traders to attract the farmers depending on the quality of their produce and offer competitive prices **without the restriction of place and area jurisdiction**.
 - For that, amendments allow **setting up of portals for e-markets**.
- **Expansion in Grievance Redressal:** The **director of an APMC** and the **Gujarat State Agriculture marketing board** will also start taking **care of the grievance redressal** which was solely managed by the APMC till now.
- **Expected Benefits to the Farmers:** Permission to private entities will lead to **competition** and will **offer the best possible remuneration to farmers** for their produce.
 - Till now, **APMCs used to form a cartel and decide on what prices to offer** to farmers.
 - Farmers will not be bound to sell only to one particular APMC and can **choose the one with the best deal** in their favour.
- **Viewpoint of APMCs**
 - **APMCs have not welcomed** the decision because it **ends their monopoly** and **allows private players** to enter.
 - The ordinance will also **affect revenues** because no cess will be collected on transactions outside the physical boundaries of marketing yards.
 - For example, last year, of the Rs. 2.5 crore earned as market fees, Rs. 1.5 crore came from transactions that were conducted outside the marketing yard. With the new ordinance in place, this **revenue will be lost**.
- The Ministry of Agriculture, formulated a **model law** on agricultural marketing, **State Agricultural Produce Marketing (Development and Regulation) Act, 2003** and requested the state governments to suitably amend their respective APMC Acts.
- Union **Budgets** of 2014-15 and 2015-16 had **suggested the creation of a National Agricultural Market (NAM)** following which **e-NAM** was launched on 14th April 2016 as a **pan-India electronic trade portal to link APMCs across the States**.

Note:

Agricultural Produce Market Committee

- It is a **statutory market committee** constituted by a **State Government** in respect of trade in certain notified **agricultural or horticultural or livestock products**, under the **Agricultural Produce Market Committee Act** issued by that state government.
 - Agriculture is a state subject.
- **Objectives:**
 - Ensure transparency in pricing systems and transactions taking place in the market area.
 - Provide market-led extension services to farmers.
 - Ensure payment for agricultural produce sold by farmers on the same day.
 - Promote agricultural processing including activities for value addition in agricultural produce.
 - Setup and promote public private partnership in the management of agricultural markets, etc.

Jharkhand Launches Employment Schemes

Why in News

Recently, Jharkhand launched three employment schemes — **Birsa Harit Gram Yojana (BHGY)**, **Neelambar Pitambar JAL Sammridhi Yojana (NPJSY)** and **Veer Sahid Poto Ho Khel Vikas Scheme (VSPHKVS)** — to create wage employment for workers in rural areas.

- Earlier, the Odisha government has announced a Rs 100-crore Urban Wage Employment Initiative to generate employment for the urban poor in 114 urban local bodies.

Key Points

- These three schemes have been devised in convergence with the **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**.
- According to the Centre for Monitoring Indian Economy (CIME) data, the State is reeling under severe joblessness with unemployment rate pegged at 47.1% — double that of the national average (23.5%).
 - The arrival of an estimated 5 lakh to 6 lakh stranded migrant workers (due to Covid-19 lockdown) from other states is likely to worsen the situation.
- Through MGNREGA and these special schemes the state government plans to create 30 crore person days

and provide wage employment to the rural people in the coming 5 years.

- **Birsa Harit Gram Yojana (BHGY):**
 - The BHGY is envisaged at bringing over two lakh acres of unused government fallow land under the afforestation programme.
 - About five lakh families will be provided 100 fruit-bearing plants.
 - The initial plantation, maintenance, land work and afforestation will be taken up through MGNREGA.
 - Each family is estimated to receive an annual income of Rs.50,000 from fruit harvest after three years while the ownership of land will remain with the government.
- **Neelambar Pitambar Jal Sammridhi Yojna (NPJSY):**
 - Under this, the government is aiming at creating agro-water storage units by arresting rainwater and runaway groundwater.
 - Nearly 5 lakh acre of cultivable land can be irrigated through the initiative.
 - An estimated 10 crore person days will be generated through the scheme in the next 4-5 years.
- **Veer Sahid Poto Ho Khel Vikas Scheme (VSPHKVS):**
 - Under VSPHKVS, the government is linking sports with rural job schemes for creation of assets in the rural areas in order to give a boost to sports.
 - About 5,000 sports grounds are being planned to be set up, with one each in all the 4,300 panchayats.

Report on Energy Efficiency Measures

Why in News

Recently the Ministry of Power and New and Renewable Energy released a report on the **"Impact of energy efficiency measures for the year 2018-19"**.

Key Points

- **Agency Involved:** The report was prepared by a third party **agency PWC Ltd**, who was engaged by **Bureau of Energy efficiency (BEE)**.
- **Methodology:** Since 2017-18, every year **BEE** has been appointing a **third party expert agency** which compares the estimated and actual energy consumption due to various energy efficiency schemes.

Note:

- The study assesses the **resultant impact of current schemes at national as well as state level** for the financial year and compares it with a situation where the same were not implemented.
- **Objective:** To evaluate the performance and impact of all the key energy efficiency programmes in India, in terms of total energy saved and the **related reduction in the CO₂ emissions.**
- **Key Findings:**
 - **Electricity Saving: Implementation of various energy efficiency schemes** have led to total electricity savings to the tune of 113.16 Billion Units in 2018-19, which is **9.39% of the net electricity consumption.**
 - **Energy Saving:** The total energy savings achieved in 2018-19 is 23.73 Mtoe (million Tonne of Oil Equivalent), which is 2.69% of the total primary energy supply (estimated to be 879.23 Mtoe in India).
 - **Emission Reduction:** These efforts have also contributed in reducing 151.74 Million Tonnes of CO₂ emissions, whereas last year this number was 108 Million Tonnes of CO₂.
- **Flagship Programmes:** This year the study has identified the following major programmes, viz. **Perform, Achieve and Trade Scheme, Standards & Labelling Programme, UJALA Programme, Municipal Demand Side Management Programme.**
- **Perform, Achieve and Trade Scheme:**
 - It is a **market-based mechanism** to further accelerate as well as incentivize energy efficiency in the large energy-intensive industries.
 - The **Energy Savings Certificates (ESCerts)** were introduced in India in 2011 under the **Perform, Achieve Trade scheme (PAT)** by the Bureau of Energy Efficiency (BEE) under the National Mission of Energy Efficiency.
 - NMEEE is one of the eight national missions under the **National Action Plan on Climate Change (NAPCC)** launched by the Government of India in the year 2008.
 - This market- based mechanism is facilitated through the trading of **Energy Savings Certificates (ESCerts)** which are issued to those plants who have overachieved their targets.
 - Those plants which under achieve their targets are entitled to purchase ESCerts through **two power exchanges, Indian Energy Exchange (IEX) and Power Exchange India Limited (PXIL).**
- The scheme is unique in many ways, particularly from a developing country's perspective since it creates a **market for energy efficiency** through tradable certificates ESCerts, by allowing them to be used for meeting energy reduction targets.
- **Standards & Labelling Programme:**
 - A key objective of this programme by BEE is to provide the consumer an **informed choice about the energy saving** and thereby **the cost saving potential of the relevant marketed product.**
 - The programme targets display of energy performance labels on high energy end use equipment & appliances and lays down minimum energy performance standards.
- **Unnat Jyoti by Affordable LEDs for All:**
 - UJALA was launched in **2015** with a target of replacing 77 crore incandescent lamps with LED bulbs and to nullify the high-cost of LEDs that acted as a barrier previously in the adoption of energy-efficient systems.
 - The scheme was implemented to set up a phase-wise LED distribution.
 - The **objective** is to promote efficient lighting, enhance awareness on using efficient equipment that will reduce electricity bills and preserve the environment.
 - It is the **world's largest domestic lighting project.**
- **Municipal Demand Side Management Programme:**
 - The Municipality Demand Side Management (Mu-DSM) programme of BEE was initiated during the Eleventh five year plan(2007-2012).
 - The basic objective of the project is to improve the **overall energy efficiency** of the Urban Local Bodies (ULBs), which could lead to substantial savings in the electricity consumption, thereby resulting in cost reduction/savings for the ULBs.

Bureau of Energy Efficiency

- The BEE is a **statutory body** established through **Energy Conservation Act, 2001** under the Ministry of Power, Government of India.
- It assists in **developing policies and strategies** with the primary objective of **reducing the energy intensity** of the Indian economy.

Note:

- BEE coordinates with designated consumers, designated agencies, and other organizations to identify and utilize the existing resources and infrastructure, in performing its functions.

Background

- **Pledge:** India has pledged in the **Conference of the Parties (COP21)** of the **United Nations Framework Convention on Climate Change (UNFCCC)** to bring down the energy intensity of its economy by **33 to 35% compared to 2005 levels by 2030**.
 - Energy intensity is the **amount of energy required** to produce one unit of **Gross Domestic Product (GDP)**.
 - High energy intensities indicate a high cost of converting energy into GDP. Whereas, low energy intensity indicates a lower cost of converting energy into GDP.
- **Achievement:** With its energy efficiency initiatives India has already reduced the energy intensity of its economy by **20% compared to 2005 levels**.
- **Significance:** Energy efficiency **reducing greenhouse gas emissions, reducing demand for energy imports, and lowering costs** on a household and economy-wide level.

Modifications in PMRF Scheme

Why in News

Recently, the Ministry of Human Resources and Development has carried out various amendments in the **Prime Minister's Research Fellowship Scheme** to boost research in the country.

Key Amendments

- Now, students from **any recognized university can apply for the fellowship**.
 - **Earlier** the fellowship scheme was **open only for students from Central Universities, IITs, IISc, NITs, IISERs, IIST and IIITs**.
- The requirement of **GATE score** has also been **reduced** from 750 to 600.
- As per new guidelines there will be **two channels of entries** i.e direct entry and lateral entry.
 - In **lateral entry**, the students, who are pursuing PhD in PMRF granting institutions, and have

completed 12 months or 24 months as per certain requirements, can also apply to become fellow under the scheme.

- **National Institute of Technologies (NITs)** which appear in top 25 institutions in the **National Institute Ranking Framework (NIRF)** ranking can also become PMRF Granting institution.
- To boost research a dedicated Division is being created in the MHRD with the name of "**Research and Innovation Division**".
 - This division will be headed by a director who will be coordinating research work of various institutions coming under MHRD.

Prime Minister's Research Fellowship Scheme

- In order to **attract meritorious students into research**, Government of India, in 2018 launched Prime Minister's Research Fellows (PMRF) Scheme, which offers **direct admission to such students in the Ph.D programmes** in various higher educational institutions in the country.
- The scheme is **aimed at attracting the talent pool of the country to doctoral (Ph.D.) programmes** for carrying out **research in cutting edge science and technology domains, with focus on national priorities**.
- The institutes which can offer PMRF include **all the IITs, IISERs, Indian Institute of Science, Bengaluru and some of the top Central Universities/NITs** that offer science and/or technology degrees.
- A fellowship of Rs. 70,000/- per month for the first two years, Rs. 75,000/- per month for the 3rd year, and Rs. 80,000/- per month in the 4th and 5th year is provided under the scheme.
- Apart from this, a **research grant of Rs. 2 lakh per year** is provided to each of the Fellows for a period of 5 years to cover their academic contingency expenses and for foreign/national travel expenses.

Saras Collection

Why in News

Recently, the Indian government launched the **Saras Collection** on the **Government e Marketplace (GeM)** portal.

- It is a **unique initiative** by the **GeM, Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)** and **Ministry of Rural Development**.

Note:

Key Points

- The Saras Collection **showcases daily utility products made by rural Self-Help Groups (SHGs)** and aims to provide SHGs in rural areas with **market access** to Central and State Government buyers.
- The Saras Collection will **provide SHGs with direct access to Government buyers** which will **do away with intermediaries** in the supply chain, thus **ensuring better prices** for SHGs and **spurring employment opportunities** at the local level.
- **Mechanisms:**
 - **For Functionaries:** They will be provided dashboards at the national, state, district and block level for real time information about the number of products uploaded, their value and volume of orders received and fulfilled.
 - **Government buyers:** They will be sensitized through system generated messages/ alerts in the Marketplace about availability of SHG products on the portal.
- GeM will **collaborate with State functionaries** to address the **capacity building and training needs** of SHGs and **build up their competencies** required for order packaging, catalogue management and logistics.
- GeM will **develop online learning resources in vernacular content** for SHGs with inputs and assistance from the NRLM and the **State Rural Livelihoods Missions (SRLMs)**.

Government e-Marketplace

- GeM is a one-stop **National Public Procurement Portal** to facilitate **online procurement of common use goods and services** required by various central and state government departments/organizations/ public sector undertakings (PSUs).
- It was **launched in 2016** to bring transparency and efficiency in the government buying process.
- It has been developed by **Directorate General of Supplies and Disposals** (Ministry of Commerce and Industry) with technical support of **National e-governance Division** (Ministry of Electronic and Information Technology).
- It **functions under Directorate General of Supplies and Disposals (DGS&D)**, Ministry of Commerce and Industry.
- The procurement of goods and services by Ministries and the **Central Public Sector Enterprises (CPSEs)** is **mandatory** for goods and services available on GeM.

- It also provides the tools of **e-bidding and reverse e-auction** to facilitate the government users achieve the best value for their money.
- GeM is a **completely paperless, cashless and system driven e-market place** that enables procurement of common use goods and services with minimal human interface.

SAMARTH ERP

Why in News

The **Ministry of Human Resource Development (MHRD)** has developed an **e-governance platform 'SAMARTH Enterprise Resource Planning (ERP)'** under the **National Mission of Education in Information and Communication Technology Scheme (NMEICT)**.

Key Points

- SAMARTH ERP is an **open source, open standard enabled robust, secure, scalable, and evolutionary process automation engine** for Universities and Higher Educational Institutions.
 - **Enterprise Resource Planning (ERP)** refers to a type of software used to manage day-to-day business activities such as **accounting, procurement, project management, risk management and compliance, and supply chain operations**.
 - ERP in a University can improve management and administration.
- The platform has been implemented at the **National Institute of Technology (NIT), Kurukshetra**, a participating unit under the World Bank-supported **Technical Education Quality Improvement Program (TEQIP)**.
- It would **automate the processes of the enhancement of productivity through better information management** in the institute by seamless access to information and proper utilization of information.
- It caters to faculty, students and staff at a University/ Higher Educational Institutions.

National Mission on Education through Information and Communication Technology

- The Mission, **launched in 2009**, is a landmark initiative of the MHRD, with the **objective** of seamlessly providing quality educational content to all the eligible and willing learners in India.

Note:

- It has been envisaged to leverage the potential of ICT, in the teaching and learning process for the benefit of all the learners in Higher Education Institutions.
- **Initiatives under the Program:**
 - **SWAYAM:** The **Study Webs of Active Learning for Young Aspiring Minds** (SWAYAM) is an integrated platform for offering online courses, covering school (9th to 12th) to Postgraduate Level. The online courses are being used not only by the students but also by the teachers and non-student learners, in the form of lifelong learning.
 - **SWAYAM Prabha:** It is an initiative to provide 32 High Quality Educational Channels through DTH (Direct to Home) across the length and breadth of the country on a 24x7 basis.
 - **National Digital Library of India (NDL):** It is a project to develop a framework of virtual repository of learning resources with a single-window search facility. Presently, there are more than 3 crore digital resources available through the NDL.
 - **Spoken Tutorial:** They are 10-minute long, audio-video tutorials, on open source software, to improve employment potential of students. It is created for self learning, audio dubbed into 22 languages and with the availability of an online version.
 - **Free and Open Source Software for Education (FOSSEE):** It is a project promoting the use of open source software in educational institutions. It does that through instructional material, such as

spoken tutorials, documentation, such as textbook companions, awareness programmes, such as conferences, training workshops, and internships.

- **Virtual Lab:** This is a project to develop a fully interactive simulation environment to perform experiments, collect data, and answer questions to assess the understanding of the knowledge acquired.
- **E-Yantra:** It is a project for enabling effective education across engineering colleges in India on embedded systems and robotics.

Technical Education Quality Improvement Programme

- It was started in **2002** by the **Ministry of Human Resources and Development** with the assistance of the **World Bank** and is being implemented in a phased manner.
- It aims to upscale the quality of technical education and enhance capacities of institutions.
- **The Technical Education Quality Improvement Programme III (TEQIP-III)** was started in 2017 and will be completed by 2021.
 - It aims to develop technical education as a key component for improving the quality of Engineering Education.
 - The objective is to improve quality and equity in engineering institutions in focus states such as in low income states.



Note:

Economic Scenario

Highlights

- Atmanirbhar Bharat and Economic Stimulus
- Economic Stimulus-I
- Economic Stimulus-II
- Economic Stimulus-III
- Economic Stimulus-IV
- Economic Stimulus-V
- Core Sector Shrinks by 6.5%
- Forex Reserves
- Drop in FPI Outflows
- RBI Cancels Licence of CKP Co-op Bank
- Co-operative Banks Under Sarfaesi Act
- Manufacturing Hits Record Low
- MSMEs and Covid-19
- Helicopter Money
- Relevance of the Consol Bonds amid Covid-19
- RBI's Gold Reserve Increased
- Mandis Under e-NAM Increased
- CHAMPIONS Portal for MSME

Atmanirbhar Bharat and Economic Stimulus

Why in News

Recently, the Prime Minister has announced the 'Atmanirbhar Bharat Abhiyan (or Self-reliant India Mission)' with an economic stimulus package, worth Rs 20 lakh crores aimed towards achieving the mission.

- The announced economic package is **10% of India's Gross Domestic Product (GDP) in 2019-20**.
- The amount **includes** packages already announced at the beginning of the lockdown incorporating **measures from the RBI** and the **payouts under the Pradhan Mantri Garib Kalyan Yojana**.
- The package is expected to focus on **land, labour, liquidity, and laws**.

Self-reliant India Mission

- The Self-reliant India Mission aims towards **cutting down import dependence** by focussing on substitution while improving safety compliance and quality goods to gain global market share.
 - The Self-reliance **neither signifies any exclusionary or isolationist strategies** but involves creation of a helping hand to the whole world.
- The Mission focuses on the **importance of promoting "local" products**.

- The Mission will be carried out in **two phases**:
 - **Phase 1:** It will consider sectors like medical textiles, electronics, plastics and toys where local manufacturing and exports can be promoted.
 - **Phase 2:** It will consider products like gems and jewellery, pharma and steel, etc.
- The Mission would be based on **five pillars**, namely:
 - Economy
 - Infrastructure



Note:

- System
- Vibrant Demography
- Demand
- The Mission is also expected to complement **'Make In India Initiative'** which intends to encourage manufacturing in India.

Analysis of the Economic Package

- **Inclusion of RBIs' Expenditure in Fiscal Package:**
 - The declared package is considered to be substantially less because **it includes the actions of RBI as part of the government's "fiscal" package, even though only the government controls the fiscal policy and not the RBI** (which controls the 'monetary' policy).
 - Thus, the Government expenditure and RBI's actions are **neither the same nor can they be added** in this manner. And thus nowhere in the world fiscal packages are declared in this manner.
 - For instance, when the US announced a relief package of \$3 trillion (Rs 225 lakh crore), it only refers to the money that will be spent by the government — and does not include the expenditure of the Federal Reserve (US central bank).
- **Implication of Inclusion of RBIs' Expenditure:**
 - If the government is including RBI's liquidity decisions in the calculation, then the **actual fresh spending by the government could be considerably lower.**
 - That's because RBI has been coming out with **Long Term Repo Operation (LTRO)**, to infuse liquidity into the banking system worth Rs 1 lakh crore at a time. If RBI launches another LTRO of Rs 1 lakh crore, then the overall fiscal help falls by the same amount.
 - The direct expenditure by a government usually includes wage subsidy or direct benefit transfer or payment of salaries, etc, **immediately and necessarily stimulates the economy.** In other words, that **money necessarily reaches the people**, either as **through salary or purchase.**
 - But **measures from RBI include credit easing**, that is, making more money available to the banks so that they can lend to the broader economy, is not like government expenditure.
 - In times of crisis, banks may take that money from RBI and, instead of lending it, may park it back with the RBI.

- Recently, Indian banks have parked Rs 8.5 lakh crores with the central bank. So in terms of calculations, RBI has given a stimulus of Rs 6 lakh crore. But in reality, RBI has received an even bigger amount back from the banks.
- Thus, the **declared amount is 10% of GDP, but less than 5% cash outgo is expected.**

Economic Stimulus-I

Why in News

Recently, the Union Finance Minister announced **liquidity measures for businesses, especially Micro, Small and Medium enterprises (MSMEs)**, as part of the **first tranche** of **Atmanirbhar Bharat Abhiyan**.

- The announced measures also form a **part of the Rs. 20-lakh-crore economic stimulus package** to deal with the **Covid-19 pandemic**.
- This economic stimulus includes both **liquidity financing measures and credit guarantees**.

Key Points

- **Salaried Workers and Taxpayers:**
 - The deadline for income tax returns for the financial year 2019-20 has been extended, with the due date now pushed to November 30, 2020.
 - The rates of Tax Deduction at Source (TDS) and Tax Collection at Source (TCS) have been **cut by 25%** for the FY 2020-21.
 - The statutory **Provident Fund (PF) payments have been reduced from 12% to 10% for both employers and employees** for the next three months.
- **NBFCs, Housing Finance Companies and Microfinance Institutions:**
 - Many of these institutions serve the MSME sector financially and will be supported through a Rs 30,000 crore investment scheme **fully guaranteed by the Centre**.
 - Further, an expanded **partial credit guarantee scheme worth Rs 45,000 crores** also has been offered, of which the **first 20% of losses will be borne by the Centre**.
 - For instance, if the government provides a 100% credit guarantee up to an amount of Rs 1 crore to a firm, it means that a bank can lend Rs 1 crore to that firm; in case the firm fails to pay back, the

Note:

government will repay all of Rs 1 crore. If this guarantee was for the first 20% of the loan, then the government would guarantee to pay back only Rs 20 lakh.

➤ Power Distribution Companies:

- As these companies are facing an unprecedented cash flow crisis and thus will receive Rs 90,000 crore liquidity injection.

➤ Real Estate and Contractors:

- Contractors (those dealing with the construction/works and goods and services contracts) will get a six month extension for completion of work from all Central agencies, and also get partial bank guarantees to ease their cash flows.
- Registered real estate projects will get a six-month extension for registration and completion of Real Estate Projects under **Real Estate (Regulation and Development) Act (RERA)** with Covid-19 to be treated as a **“force majeure” event**.
 - A Force Majeure (FM) means extraordinary events or circumstances beyond human control such as an event described as an Act of God (like a natural calamity).

➤ Global Tenders to be Disallowed:

- Indian MSMEs and other companies have often faced unfair competition from foreign companies and would be difficult to compete in the future due to Covid-19 pandemic.
- Therefore, **global tenders will be disallowed in government procurement tenders upto Rs 200 crores.**

Liquidity Measures for MSMEs

➤ New Definition of MSMEs:

- The definition of an **MSMEs** has been expanded to **allow for higher investment limits** and the **introduction of turnover-based criteria**.
 - Earlier MSMEs were defined on the basis of the limit of investment in machinery or equipment.
 - The ‘turnover’ is the more efficient way to identify an MSME as it allows a lot of firms, especially in the services sector like mid-sized hospitals, hotels and diagnostic centres to be eligible for benefits as an MSME.
- There will be **no difference between a manufacturing MSME and a services MSMEs.**

Existing and Revised Definition of MSMEs

Existing MSME Classification			
Criteria: Investment in Plant & Machinery or Equipment			
Classification	Micro	Small	Medium
Mfg. Enterprises	Investment <Rs. 25 lac	Investment <Rs. 5cr.	Investment <Rs. 10cr.
Services Enterprise	Investment <Rs. 10 lac	Investment <Rs. 2cr.	Investment <Rs. 5cr.
Revised MSME Classification			
Composite Criteria: Investment and Annual Turnover			
Classification	Micro	Small	Medium
Manufacturing & Services	Investment <Rs. 1cr. and Turnover <Rs. 5cr.	Investment <Rs. 10cr. and Turnover <Rs. 50cr.	Investment <Rs. 20cr. and Turnover <Rs. 100cr.

➤ Infusion of Liquidity:

- Instead of directly infusing money into the economy or giving it directly to MSMEs, the government will offer **credit guarantees for MSMEs**.
- **Emergency Credit Line:** The **collateral free loans** of worth **Rs. 3 lakh crores** will be available for MSMEs. It will ensure access to working capital to resume business activity and safeguard jobs for 45 lakh MSMEs.
 - The above measure is available for MSMEs that have an **already outstanding loan of Rs. 25 crore or those with a turnover less than Rs 100 crore.**
 - The loans will have a tenure of 4 years and they will have a **moratorium of 12 months** (that is, the payback starts only after 12 months).

Lockdown antidote

Finance Minister Nirmala Sitharaman announced the features for the first part of the Atmanirbhar Bharat Abhiyan

For small businesses

- ₹3,00,000 crore emergency credit for Micro, Small and Medium Enterprises (MSMEs)
- Only domestic firms can bid for govt. procurements up to ₹200 crore

For employees/ tax payers

- EPF deductions slashed for 3 months to **20% from 24%** of salary; IT returns deadline extended
- This will enhance take-home pay if employers pass it on, but dent retirement savings

For infrastructure sector

- Power PSUs to lend **₹90,000 crore** to stressed State distribution

companies

- Deadlines for realty projects and public infrastructure contracts extended

For financial sector

- Fresh **₹45,000 crore** partial credit guarantees for non-banking finance companies (NBFCs)
- **₹30,000 crore** special liquidity for microfinance/ housing finance firms and NBFCs



Relief at hand: Finance Minister Nirmala Sitharaman addressing a press conference to announce details of the economic stimulus package in New Delhi on Wednesday.

● SHIV KUMAR PUSHAKAR

Note:

- **Subordinate Debt Scheme** : The loans of amount Rs. 20,000 crore will be provided to MSMEs that were **already categorised as “stressed”, or struggling to pay back.**
 - In this case, the **government provides partial guarantee.**
- **Equity Infusion:** Fund of Funds with corpus of **Rs 10,000 crores** will be set up which will provide **equity funding for MSMEs** with growth potential and viability.

Credit Guarantees to MSMEs

- **Description:**
 - A Credit Guarantee Schemes (CGS) by the government assures the bank that its loan will be **repaid by the government in case the MSME falters.**
- **Reasons for Introduction of CGS:**
 - Though, there was an option to pump liquidity via the banks but banks suspect any new loans due to rising Non-Performing Assets (NPAs).
 - Thus, the government faced a dual problem where banks had the money but were not willing to lend to the credit-starved sections of the economy, while the government itself did not have enough money to directly help the economy.
 - The credit guarantees solve dual issues faced by the government.
- **Implications:**
 - Such CGS creates moral hazards as borrowers remain assured of paying back and the lender remains assured of receiving credit amounts. Subsequently, the government is forced to pay the amount.

Overall Implications of Economic Stimulus

- The measures announced during the first tranche of the economic stimulus focuses **majorly on supply side measures**, aimed at activating businesses in the MSME, real estate, NBFC sectors.
- In general, **stimulus measures are aimed at boosting demand** either by government spending on its own account or increasing disposable incomes of households through cash transfers or tax concessions.
- Indian economy needs **both supply and demand side measures** for the revival.

Economic Stimulus-II

Why in News

This includes the short term and long-term measures for supporting the poor, including migrants, farmers, tiny businesses and street vendors as part of the second tranche of **Atmanirbhar Bharat Abhiyan.**

- The **Economic Stimulus-I** was announced which includes both **liquidity financing** measures and **credit guarantees.**

Key Points

- **Free Food Grains Supply**
 - **Allocation of additional food grain** to all the States/UTs (5 kg per migrant labourer and 1 kg chana per family per month) for **two months** (May and June, 2020) **free of cost.**
 - This move is an extension of the **Pradhan Mantri Gharib Kalyan Yojana.**
 - **Eligibility:** Migrant labourers **not covered under National Food Security Act (NFSA), 2013** or **without a ration card** in the State/UT in which they are stranded at present.
 - There are an estimated 8 crore migrant workers, housed in government and privately run relief camps across the country since the lockdown.
 - The entire **outlay of Rs.3500 crore** will be borne by the Government of India.
- **One Nation One Ration Card**
 - 67 crore beneficiaries covering 83% of **Public Distribution System (PDS)** population will be covered by National portability of Ration cards by August, 2020 and 100% National portability will be achieved by March, 2021.
 - **One Nation One Ration Card** is part of **Technology Driven System Reforms** and will enable migrant workers and their family members to **access PDS benefits from any Fair Price Shop** in the country.
 - This will ensure that the people in transit, especially migrant workers can also get the PDS benefit across the country.
- **Scheme for Affordable Rental Housing Complexes for Migrant Workers and Urban Poor**
 - This scheme will be launched soon and under this, the Central Government will **provide ease of living at affordable rent.**

Note:

- Under this:
 - Government funded houses in the cities will be converted into **Affordable Rental Housing Complexes (ARHC)** under **PPP mode (Public Private Partnerships)** through concessionaires.
- **Interest Subvention for Shishu MUDRA loanees**
 - Government of India will provide **Interest subvention of 2%** for prompt payees for a **period of 12 months** to **MUDRA Shishu** loanees, who have **loans below Rs. 50,000**.
 - The current portfolio of MUDRA Shishu loans is around Rs. 1.62 Lakh crore. This will provide **relief of about Rs. 1,500 crore to Shishu MUDRA loanees**.
- **Credit Facility for Street Vendors**
 - A scheme will be launched to **facilitate easy access to credit to Street vendors** and **enable them to restart** their businesses.
 - It is expected that **50 lakh street vendors will be benefited** under this scheme and **credit of Rs. 5,000 crore would be provided**.
 - Bank credit facilities for initial working capital up to Rs. 10,000 for each enterprise will be extended.
- **Extension of Credit Linked Subsidy Scheme**
 - The **Credit Linked Subsidy Scheme** for **Middle Income Group (MIG, annual income between Rs. 6 and Rs. 18 lakhs)** will be **extended up to March 2021**.
 - This subsidy scheme comes under the **Pradhan Mantri Awas Yojana (Urban)**.
 - This will **benefit 2.5 lakhs middle income families** during 2020-21 and will lead to **investment of over Rs. 70,000 crore** in housing sector.
 - This will create a significant number of jobs by giving a boost to the Housing sector and will stimulate demand for steel, cement, transport and other construction materials.
- **Creating Employment using CAMPA Funds**
 - Approximately **Rs. 6,000 crore of funds** under **Compensatory Afforestation Management & Planning Authority (CAMPA)** will be used.
 - The funds will be **utilised in** afforestation and plantation works, artificial regeneration, forest management, soil & moisture conservation works, forest protection, forest and wildlife related infrastructure development, wildlife protection and management etc.

- Government will **grant immediate approval** to these plans which will create job opportunities in urban, semi-urban and rural areas and also for Tribals.
- **Additional Emergency Working Capital through NABARD**
 - **National Bank for Agriculture and Rural Development (NABARD)** will **extend additional re-finance support of Rs.30,000 crore** for meeting crop loan requirements of **Rural Cooperative Banks (RCBs)** and **Regional Rural Banks (RRBs)**.
 - This **refinance** will be **front-loaded** (uneven distribution with a greater proportion at one time and smaller ones at other time) and **available immediately**.
 - This is **over and above Rs. 90,000 crore** that will be provided by NABARD to this sector in the normal course.
 - This will **benefit around 3 crore farmers**, mostly small and marginal and will meet their post-harvest Rabi and current Kharif requirements.
- **Credit Boost to Kisan Credit Card Scheme**
 - It is a special drive to provide concessional credit to **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)** beneficiaries through **Kisan Credit Cards**.
 - It will inject **additional liquidity of Rs. 2 lakh crore** in the farm sector.
 - **2.5 crore farmers will be covered** and fisherman and animal husbandry farmers will also be included in this drive.

Criticism

- Economists say that this intervention was **too little, too late**, and that the free foodgrain provision **should have been universalised** to deal with widespread distress.
- There are 50 crore people in the country without ration cards, of which 10 crore are legally entitled to PDS grain under NFSA. Of the rest, there are many people who were managing in normal times, vegetable vendors, gig economy workers, autorickshaw drivers, who are in dire straits now. **PDS needed to be extended to all these people** at this time.
- Economists have asked the government for a **one-time cash transfer to vulnerable sections** like migrant labourers.
- There were no steps taken to extend **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** employment guarantee to at least 200 days.

Note:



- **Currently**, MGNREGA aims to provide **at least 100 days** of wage employment.

Economic Stimulus-III

Why in News

This announcement includes the measures to strengthen Infrastructure Logistics, Capacity Building, Governance and Administrative Reforms for Agriculture, Fisheries and Food Processing Sectors as part of the third tranche of [Atmanirbhar Bharat Abhiyan](#).

Key Points

- **Agri Infrastructure Fund**
 - Financing facilities of ₹1,00,000 crore for funding Agriculture Infrastructure Projects at farm-gate and aggregation points ([Primary Agricultural Cooperative Societies](#), [Farmers Producer Organizations](#) (FPOs), Agriculture entrepreneurs, Start-ups, etc.).
 - Funds will be created immediately.
- **Formalisation of Micro Food Enterprises**
 - A ₹10,000 crore scheme promoting 'Vocal for Local with Global outreach' will be launched to help 2 lakh Micro Food Enterprises (MFEs) who need technical upgradation to attain [Food Safety and Standards Authority of India](#) (FSSAI) food standards, build brands and marketing.
 - Existing micro food enterprises, FPOs, [Self Help Groups](#) (SHGs) and Cooperatives will be supported.
 - The focus will be on women and SC/ST owned units and those in [Aspirational districts](#) and a Cluster based approach (e.g. Mango in Uttar Pradesh, Tomato in Karnataka, Chilli in Andhra Pradesh, Orange in Maharashtra etc.) will be followed.
- **Pradhan Mantri Matsya Sampada Yojana**
 - The scheme will be launched for integrated, sustainable, inclusive [development of marine and inland fisheries](#).
 - ₹11,000 crore for activities in Marine, Inland fisheries and Aquaculture and ₹9000 crore for Infrastructure (fishing harbours, cold chain, markets etc) shall be provided.
 - The focus will be on Islands, Himalayan States, North-east and Aspirational Districts.
- **National Animal Disease Control Programme**
 - [National Animal Disease Control Programme](#) for [Foot and Mouth Disease \(FMD\)](#) and [Brucellosis](#) launched with a total outlay of ₹13,343 crore to ensure 100% vaccination of cattle, buffalo, sheep, goat and pig population.
- **Animal Husbandry Infrastructure Development Fund**
 - Under it, a fund of ₹15,000 crore will be set up, with an aim to support private investment in Dairy Processing, value addition and cattle feed infrastructure.
 - [Animal rearing](#) or husbandry is considered an associate business with agricultural activities in rural India and is an integral component of Indian agriculture, supporting the livelihood of the rural population.
 - **Incentives will be given for establishing plants for export of niche products.**
 - A niche product is a product targeting a specific section of a larger industry and market. Niche products are often (but not always) more expensive than more generic products.
 - Example: Organic foods, Speciality foodstuff like high-quality coffee, Customisable products, etc.
- **Promotion of Herbal Cultivation**
 - 10,00,000 hectare will be covered under Herbal cultivation in next two years with an outlay of ₹4,000 crore which will lead to ₹5,000 crore income generation for farmers.
 - The National Medicinal Plants Board (NMPB) has supported 2.25 lakh hectare area under cultivation of medicinal plants and will bring 800-hectare area by developing a corridor of medicinal plants along the banks of [Ganga](#).
 - NMPB was set up by the Government of India on 24th November, 2000 to promote the medicinal plants sector.
 - Currently, the board is located under the Ministry of [AYUSH](#).
- **Beekeeping Initiatives**
 - With an outlay of ₹500 crore, Government will implement a scheme for:
 - Infrastructure development related to [Integrated Beekeeping Development Centres](#), capacity building, collection, marketing and storage centres, post harvest & value addition facilities.
- **Extension of Operation Greens**

Note:

- **Operation Greens** run by the Ministry of Food Processing Industries will be extended from Tomatoes, Onion and Potatoes (TOP) to all fruit and vegetables, with an outlay of ₹500 crore.
- It will provide 50% subsidy on transportation from surplus to deficit markets, 50% subsidy on storage, including cold storages and will be launched as pilot for the next 6 months and will be extended and expanded.
- This will lead to better price realisation to farmers, reduced wastages and affordability of products for consumers.
- **Amendments to Essential Commodities Act, 1955**
 - Under the amendments to the **Essential Commodities Act (ESA)**, agriculture food stuffs including cereals, edible oils, oilseeds, pulses, onions and potatoes shall be deregulated.
 - Stock limits will be imposed under very exceptional circumstances like national calamities, famine with surge in prices.
 - Further, no such stock limit shall apply to processors or value chain participants, subject to their installed capacity or to any exporter subject to the export demand.
- **Agriculture Marketing Reforms**
 - A Central law will be formulated to provide:
 - Adequate choices to the farmer to sell their produce at remunerative price.
 - Barrier free Inter-State Trade.
 - Framework for e-trading of agriculture produce.

Advantages from the Reforms

- The two recent reforms of amendment in the ECA and the proposed formulation of a Central law that will not bind farmers to sell their crop only to licensed traders in the **Agricultural Produce Market Committee (APMC)** mandis of their respective talukas or districts will empower farmers.
 - ECA will define clear triggers in terms of “price surges” for imposition of stocking limits.
 - These provisions will be incorporated in the Act itself to remove any scope for administrative ambiguity.
 - This will help in **inflation**-targeting within the ceiling of 6% as prescribed by the **Reserve Bank of India**.
- While agriculture is a state subject and state governments have accordingly enacted their own APMC Acts, the new Central law apparently relies

on Article 301 (Freedom of trade, commerce and intercourse) of the Constitution along with entries in the **Seventh Schedule** (defines and specifies allocation of powers and functions between Union and States).

- These give powers to the Centre to regulate all interstate and intrastate trade and commerce in foodstuffs, which can be used to create an integrated national market by removing restrictions placed by APMC laws.

Economic Stimulus-IV

Why in News

The fourth tranche of **Atmanirbhar Bharat Abhiyan** is targeted towards **fast track investments in the eight sectors**.

- The fourth tranche focuses on eight sectors namely, coal, minerals, defence production, civil aviation, power distribution, social infrastructure, space and atomic energy.

Basis of Policy Reforms for Fast-track Investments

- Fast tracking of investment clearance through the Empowered Group of Secretaries.
- Establishment of Project Development Cell in each Ministry to prepare a list of investable projects and also to coordinate with investors and Central/State Governments.
- Ranking of States on investment attractiveness to compete for new investment.
- Incentive schemes for promotion of new champion sectors such as solar PhotoVoltaic (PV) manufacturing; advanced cell battery storage etc.

Key Points

- **Coal Sector:**
 - **Commercial Mining:**
 - The introduction of commercial mining will remove the government monopoly in coal mining. India has the third-largest coal availability within its untapped mines and yet India still imports coal.
 - Commercial mining will be introduced on the basis of a revenue-sharing mechanism. The government will receive a share of the gross revenue from the sale of coal but will not be involved with the cost incurred.

Note:



○ **Coal Gasification/Liquefaction:**

- It will be incentivised through rebate (partial refund) in revenue share to lower the environmental impact. It is also expected to assist India in switching to a gas-based economy.

○ **Infrastructure Investment:**

- The infrastructure development worth of Rs. 50,000 crores will be done to achieve the Coal India Limited's (CIL) target of 1 billion tons coal production by 2023-24 plus coal production from private blocks.

○ **Coal Bed Methane (CBM) Extraction:**

- These extraction rights to be auctioned from Coal India Limited's (CIL) coal mines.

○ **Mining Plan Simplification:**

- Ease of Doing Business measures, such as Mining Plan simplification, will be considered. It is expected to increase annual production by 40%.

➤ **Mineral Sector:**

- **Exploration-cum-Mining-cum-Production Regime:**
- 500 mining blocks would be offered through an open and transparent auction process under this composite regime.

- **Joint Auction of Bauxite and Coal Mineral Blocks:**

- It aims to enhance the aluminium industry's competitiveness by reducing the cost of electricity generation.

○ **Captive and Non-captive Mines:**

- The government has decided to remove the distinction between captive and non-captive mines to allow the transfer of mining leases and the sale of surplus unused minerals, leading to better efficiency in mining and production.
- The captive mines are that produce minerals for use by the same company.

➤ **Defence Sector:**

○ **Revision of FDI Limit:**

- The FDI limit in defence manufacturing under automatic route will be raised from 49% to 74%.

○ **Project Management Unit:**

- The government is expected to begin time-bound defence procurement and faster decision

Breaking down walls

Finance Minister Nirmala Sitharman announced a set of structural reforms across sectors as a part of the efforts to boost a sagging economy



COAL

Commercial mining on a revenue sharing basis to be introduced. Companies in the private sector will be allowed to carry out exploration



MINERALS

Composite exploration-cum-mining-cum-production regime for minerals to be announced. 500 mining blocks will be auctioned



DEFENCE

A list of weapons/platforms for ban on import will be notified. FDI limit in manufacturing under automatic route to be raised to 74%



CIVIL AVIATION

Restrictions on utilisation of the airspace will be eased so that flying becomes efficient. Now, only 60% of the airspace is freely available



POWER

Power departments/utilities and distribution companies in U.T.s to be privatised. It will be in line with the tariff policy which is to be announced



SPACE

Privatisation to be introduced. Planetary exploration, outer space travel to be opened to the private sector



ATOMIC ENERGY

Research reactor in PPP mode to be set up for the production of medical isotopes



making by setting up a Project Management Unit (PMU) to support contract management.

○ **Reduction in Defence Import Bill:**

- The government will notify a list of weapons/platforms banned for imports and thus such items can only be purchased from India.

➤ **Civil Aviation:**

○ **Efficient Airspace Management:**

- The restrictions on the utilisation of Indian airspace will be eased so that the flying of civilian aircraft becomes more efficient. Such utilisation is expected to bring in benefits of nearly Rs 1,000 crore per year.
- It will also lead to optimal utilization of airspace, reduction in fuel use, time and will have positive environmental impact.
- Currently, only 60% of India's airspace is freely available and thus airplanes have been flying to most destinations through longer routes hence more fuel is used in the process and the customers end up paying more.

○ **Airports Development through PPP:**

- In addition to the existing ones, six more airports will be auctioned under the Public-Private-Partnership (PPP) model for its development.

○ **India-a global hub for Aircraft Maintenance, Repair and Overhaul (MRO):**

- The aircraft component repairs and airframe maintenance is intended to increase from Rs 800 crore to Rs 2,000 crore in three years.

Note:

- The convergence between the Defence sector and the civil MROs will be established to bring down the maintenance cost of airlines.
- **Power Distribution Sector:**
 - **Tariff Policy Reforms:**
 - The tariff policy reforms will be announced in the future. The reforms are expected to focus on the consumer rights, promotion of industry and sustainability of the sector.
 - **Privatization of Distribution in UTs:**
 - The power departments/utilities in Union Territories will be privatised.
 - It is expected to improve the operational and financial efficiency in Distribution.
- **Social Infrastructure Projects:**
 - **Investments through Viability Gap Funding:**
 - The government is expected to invest Rs 8,100 crores through Viability Gap Funding (VGF).
 - Currently, most of the projects are supported by centre/states/statutory bodies with 20% as VGF. But the Centre will be increasing its share in VGF to 30% in the future.
 - The above benefits will be provided if the projects will be proposed by Central Ministries/ State Government/ Statutory entities.
 - Viability Gap Funding (VGF) signifies a grant, one-time or deferred, provided to support infrastructure projects that are economically justified but fall short of financial viability. The lack of financial viability usually arises from long gestation periods and the inability to increase user charges to commercial levels.
- **Space Sector:**
 - **Participation of the Private Sector:**
 - The government will be providing a level playing field for private companies in satellites, planetary exploration, outer space travel, launches and space-based services.
 - Such private players will also be allowed to use ISRO's facilities and other relevant assets to improve their capabilities.
 - **Liberal Geo-spatial Data Policy:**
 - There will also be a liberal geo-spatial data policy for providing remote-sensing data to tech-entrepreneurs.

➤ **Atomic Energy:**

○ **Research Reactor in PPP Mode:**

- It will help to produce medical isotopes for affordable treatment of cancer and other diseases.
- It will also generate facilities to use irradiation technology for food preservation. This will complement agricultural reforms and assist farmers.

○ **Technology Development cum Incubation Centres:**

- These centres will be set up to act as a link between India's robust start-up ecosystem to the nuclear sector.

Criticism

- It is considered to be less of a stimulus and more of industrial reforms, which could have been announced at any time.
- It has been also observed that the only direct budgetary cost in this tranche was the Rs. 8,100 crore to be provided as a raised 30% viability gap funding to boost private investment in social sector infrastructure.
- The fourth tranche covered sectors of strategic importance but these policies will be rolled out over a 3-6 month period, and any implication for supporting or reviving the economy as it comes out of lockdown is missing.

Economic Stimulus-V

Why in News

Recently, the Union Finance Minister announced the measures for **providing employment and support to businesses, state governments as well sectors such as education and health** as part of the fifth and final tranche of **Atmanirbhar Bharat Abhiyan**.

Key Points

➤ **Increase in Allocation for MGNREGA**

- The Government will allocate an additional Rs.40,000 crore under **Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MGNREGA)**.
 - It will help generate nearly 300 crore person days in total, addressing the need for more work by the migrants who are returning to their hometowns due to the pandemic and **lockdown**.

Note:



Final dose

The fifth tranche of the economic package under the Atmanirbhar Bharat Abhiyan was announced on Sunday

Health



- Public spending to be increased; more health and wellness centres

- Infectious diseases hospitals and public health labs to be set up in all districts

Disinvestment



- Public sector firms in non-strategic sectors to be privatised

- No more than four public sector undertakings to remain in 'strategic' sectors; to be notified soon

States



- Borrowing ceiling raised from ₹6.41 lakh crore (3% of GSDP) to ₹10.69 lakh crore

- Only a quarter of this hike is unconditional; rest are linked to reforms in specified areas

Unemployment



- MGNREGS allocation hiked by ₹40,000 crore to fund 300 crore person days

- Aimed at giving migrants who have returned home an income option

Industry



- Fresh insolvency proceedings suspended for a year, eligible loan size to be hiked from ₹1 lakh to ₹1 crore

- COVID-19 related debt not to trigger defaults; firms can list abroad directly

- Creation of a larger number of durable and livelihood assets including **water conservation** assets which will boost the rural economy through higher production.

➤ Health Reforms and Initiatives

- Public expenditure on health will be increased by investing in grass root health institutions and ramping up health and wellness centres in rural and urban areas.
- Preparing India for future pandemics:**
 - Setting up of Infectious Diseases Hospital Blocks in all districts.
 - Strengthening of lab networks and surveillance (Integrated Public Health Labs in all districts and blocks).
 - The National Institutional Platform for One Health by **Indian Council of Medical Research (ICMR)** will encourage research.
 - Implementation of **National Digital Health Blueprint** under the National Digital Health Mission (NDHM).
 - NDHM was recommended to be established as a purely government organization with complete functional autonomy on the lines of **Unique Identification Authority of India (UIDAI)** and **Goods and Services Network GSTN**.

➤ Technology Driven Education with Equity

- Government will launch PM eVIDYA, a programme for multi-mode access to digital/online education with immediate effect. It consists of:
 - DIKSHA** for school education in States/UTs: e-content and QR coded Energized Textbooks for all grades (one nation, one digital platform)
 - One earmarked TV channel per class from 1 to 12 (One class, One channel)
 - Extensive use of Radio, Community radio and Podcasts.
 - Special e-content for visually and hearing impaired.
 - Top 100 universities will be permitted to automatically start online courses by 30th May, 2020.
- Manodarpan, an initiative for psycho-social support for students, teachers and families for mental health and emotional well-being will be launched.
- New National Curriculum and Pedagogical framework for school, early childhood and teachers will be launched.
- National Foundational Literacy and Numeracy Mission for ensuring that every child attains learning levels and outcomes in grade 5 by 2025 will be launched by December 2020.

➤ Measures Related to IBC

- Minimum threshold to initiate insolvency proceedings has been raised to Rs.1 crore (from Rs.1 lakh, which largely insulates **Micro, Small and Medium Enterprises-MSMEs**).
- Special insolvency resolution framework for MSMEs under Section 240A of the **Insolvency and Bankruptcy Code (IBC)** will be notified.
- Suspension of fresh initiation of insolvency proceedings up to one year, depending upon the pandemic.
- Empowering the Central Government to exclude Covid-19 related debt from the definition of "default" under the IBC for the purpose of triggering insolvency proceedings.

➤ Measures Related to the Companies Act

- Decriminalisation of Companies Act, 2013 violations involving minor technical and procedural defaults (shortcomings in **Corporate Social Responsibility (CSR)** reporting, inadequacies in Board report, filing defaults, etc).

Note:



- Majority of the compoundable offences sections to be shifted to Internal Adjudication Mechanism (IAM).
- The amendments will de-clog the **criminal courts** and **National Company Law Tribunal (NCLT)**.
- **Ease of Doing Business for Corporates**
 - **Key reforms include:**
 - Direct listing of securities by Indian public companies in permissible foreign jurisdictions.
 - Private companies which list **Non-Convertible Debentures (NCDs)** on stock exchanges not to be regarded as listed companies.
 - Including the provisions of Part IXA (Producer Companies) of Companies Act, 1956 in **Companies Act, 2013**.
 - Power to create additional/specialized benches for **National Company Law Appellate Tribunal (NCLAT)**.
 - Lower penalties for all defaults for Small Companies, One-person Companies, Producer Companies and StartUps.
- **Public Sector Enterprise Policy for a New, Self-reliant India**
 - **Government will announce a new policy whereby:**
 - List of strategic sectors requiring the presence of Public Sector Enterprises (PSEs) in public interest will be notified.
 - In strategic sectors, at least one enterprise will remain in the public sector but private sector will also be allowed.
 - In other sectors, **PSEs will be privatized** (timing to be based on feasibility etc.).
- **Support to State Governments**
 - The Centre has decided to increase borrowing limits of States from 3% to 5% for 2020-21 only which will give States extra resources of Rs.4.28 lakh crore.
 - Part of the borrowing will be linked to specific reforms (including recommendations of the **Finance Commission**).
 - Reform linkage will be in four areas:
 - Universalisation of 'One Nation One Ration card'.
 - **Ease of Doing Business**.
 - Power distribution.
 - Urban Local Body revenues.

- States can borrow more in the following pattern, notified by the Department of Expenditure:
 - The first 0.5% will be an unconditional increase.
 - Next 1% in 4 tranches of 0.25%, with each tranche linked to clearly specified, measurable and feasible reform actions.
 - The last 0.50% if milestones are achieved in at least three out of four reform areas.

Analysis

- **On Increase in Allocation for MGNREGA**
 - The step to allocate more resources to MGNREGA was widely welcomed as it will support rural livelihoods in the time of crisis.
 - However, given that States account for 40% of MGNREGA expenditure, including most upfront costs, they will also have to spend on the scheme.
 - Demand for work under MGNREGA had surged to a nine-year high in 2019-20 as 5.47 crore households availed of the scheme, the highest since 2010-11.
- **On Support to State Governments**
 - The expansion of the fiscal deficit has been welcomed by the states because GSDPs (Gross State Domestic Product) are likely to contract and further shrink the possible borrowing at a time when States are at the frontline of containment and relief operations.
 - However, the conditions on additional loans have been criticised on the grounds that in future, severe conditions may be imposed on even normal loans.
 - The utilisation of additional 2% borrowing by states can be lower because states may settle on borrowing less to avoid undertaking politically difficult reforms.
 - A likely increase in borrowing cost due to the emerging gap between total **Public Sector Borrowing Requirement (PSBR)** and available resources will also lead to states not opting for the increased borrowing.
- **On Public Sector Enterprise Policy**
 - It was criticised on the grounds that privatising PSUs would find fewer buyers at a time of global recession, while any potential buyer would be spending money which could have gone into fresh investment on a financial transfer instead, effectively contracting demand.

Note:



Core Sector Shrinks by 6.5%

Why in News

The eight core sector industries contracted by 6.5% in March, 2020.

- The cumulative growth of eight core sector industries during 2019-20 was 0.6%.
- In February, 2020, the eight core sector industries recorded a growth of 5.5%.

Key Points

- Seven out of eight core sectors contracted in the month of March.
 - The contraction was led by steel production, electricity, cement production, natural gas production, fertiliser production, crude oil production and petroleum & refinery production.
 - Coal was the only core sector which saw growth.
- The contraction in the core sector has occurred despite the fact that several of the core sector industries were given exemptions under the lockdown. E.g electricity and steel which are continuous processes and were not stopped.
- However, the movement of goods faced major restrictions due the **nationwide lockdown**, resulting in **reduced demand which led to reduced production**.
 - The Government of India has imposed an unprecedented **21-day national lockdown**, as part of a series of steps to reduce the transmission of the **Covid-19**.
- The March core sector data also reflected the cut in capital expenditure by both state and central governments in order to make up for falling tax revenues.
 - The capital expenditure is defined as the money spent on the acquisition of assets like land, buildings, machinery, equipment, as well as investment in shares.
 - High capital expenditure usually means more investment by the government towards the creation of infrastructure and other assets that are crucial for rapid economic growth.

Core Sector Industries

- The eight core sector industries include coal, crude oil, natural gas, refinery products, fertiliser, steel, cement and electricity
- The eight core industries comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).
- The eight Core Industries in decreasing order of their weightage: Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.

Industry	Weight (In %)
Petroleum & Refinery production	28.04
Electricity generation	19.85
Steel production	17.92
Coal production	10.33
Crude Oil production	8.98
Natural Gas production	6.88
Cement production	5.37
Fertilizers production	2.63

Index of Industrial Production

- The Index of Industrial Production (IIP) is an indicator that measures the changes in the volume of production of industrial products during a given period.
- It is compiled and published monthly by the National Statistical Office (NSO), Ministry of Statistics and Programme Implementation.
- IIP is a composite indicator that measures the growth rate of industry groups classified under:
 - Broad sectors, namely, Mining, Manufacturing, and Electricity.
 - Use-based sectors, namely Basic Goods, Capital Goods, and Intermediate Goods.
- Base Year for IIP is 2011-2012.
- The eight core industries of India represent about 40% of the weight of items that are included in the IIP.
- Significance of IIP :
 - It is used by government agencies including the Ministry of Finance, the Reserve Bank of India, etc, for policy-making purposes.
 - IIP remains extremely relevant for the calculation of the quarterly and advance GDP estimates.

Note:



Forex Reserves

Why in News

According to the recent data from the [Reserve Bank of India](#), India's Foreign Exchange (Forex) reserves declined by \$113 million to \$479.45 billion in the week to 24 April, 2020 due to a fall in foreign currency assets.

Key Points

- Changes in forex reserves holdings.
 - The foreign currency assets (FCAs) decreased by \$321 million to \$441.56 billion.
 - Gold reserves rose by \$221 million to \$32.901 billion.

Foreign Currency Assets (FCA)

- FCAs are assets that are valued based on a currency other than the country's own currency.
- FCA is the largest component of the forex reserve. It is expressed in dollar terms.
- The FCAs include the effect of appreciation or depreciation of non-US units like the euro, pound and yen held in the foreign exchange reserves.

Special Drawing Rights (SDR)

- The SDR is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves.
- The SDR is neither a currency nor a claim on the IMF. Rather, it is a potential claim on the freely usable currencies of IMF members. SDRs can be exchanged for these currencies.
- The value of the SDR is calculated from a weighted basket of major currencies, including the U.S. dollar, the euro, Japanese yen, Chinese yuan, and British pound.
- The interest rate on SDRs or (SDRi) is the interest paid to members on their SDR holdings.

Reserve Position in the International Monetary Fund

- A reserve tranche position implies a portion of the required quota of currency each member country must provide to the International Monetary Fund (IMF) that can be utilized for its own purposes.
- The reserve tranche is basically an emergency account that IMF members can access at any time without agreeing to conditions or paying a service fee.

- The special drawing rights with the International Monetary Fund (IMF) fell by \$6 million to \$1.42 billion.
- The country's reserve position with the IMF also was down by \$8 million to \$3.57 billion.
- Earlier, the reserve had touched a life-time high of \$487.23 billion in the week ended by 6 March, 2020.
- During 2019-20, the country's foreign exchange reserves rose by almost \$62 billion.

Foreign Exchange Reserves

- Foreign exchange reserves are assets held on reserve by a central bank in foreign currencies, which can include bonds, treasury bills and other government securities.
 - It needs to be noted that most foreign exchange reserves are held in U.S. dollars.
- These assets serve many purposes but are most significantly held to ensure that the central bank has backup funds if the national currency rapidly devalues or becomes altogether insolvent.
- India's Forex Reserve include:
 - Foreign Currency Assets
 - Gold reserves
 - Special Drawing Rights
 - Reserve position with the [International Monetary Fund \(IMF\)](#)

Drop in FPI Outflows

Why in News

According to recent data from **Central Depository Services Limited (CDSL)**, the **Foreign Portfolio Investors (FPIs)** have significantly reduced the pace of outflows from the **equity and debt market** in April, 2020, after a record net outflow of Rs 1,18,203 crore in March 2020.

Key Points

- FPIs sold a net of Rs 6,883 crore from the **equities market** and net holdings worth Rs 12,551 crore from the **debt market** in April.
 - In **equity market shares are issued and traded**, either through exchanges or over-the-counter markets (i.e directly). It is also known as the stock market.

Note:



- The **debt market** is the market where **debt instruments are traded**.
- Debt instruments are instruments that require a fixed payment to the holder, usually with interest. E.g. **bonds** (government or corporate) and **mortgages**.
- However, they invested a net of Rs 4,032 crore in debt **Voluntary Retention Route (VRR) scheme**.
- VRR scheme allows FPIs to participate in **repo transactions** and also invest in **exchange traded funds** that invest in debt instruments.
- Outflows have continued **due to uncertainty surrounding economic conditions** caused by Covid-19 lockdown and investors are cautious. However, the **pessimism** also continues to grip the markets.
- So far, India has been able to contain the Covid-19 pandemic from spreading aggressively. The measures announced by the government and the **Reserve Bank of India (RBI)** periodically to revitalize the sagging economy have also resonated well with investors.
- With selective relaxation in the lockdown and gradual opening up of economic activity in the country, foreign investors will be closely watching the developments on this front.
- A success on developing medicine and vaccines will lead to a **V-shaped recovery** in the economy and markets.

Voluntary Retention Route Scheme

- The VRR scheme is **aimed at attracting long-term and stable FPI** investments into debt markets.
- Investments through the route will be **free of the regulatory norms** applicable to FPI investments in debt markets, provided investors maintain a minimum share of their investments for a fixed period.
- VRR Scheme has a minimum retention period of **three years** and investors need to **maintain a minimum of 75% of their investments** in India.
- FPIs registered with **Securities and Exchange Board of India (SEBI)** are eligible to voluntarily invest through the route in government and corporate bonds.

V-Shaped Recovery

- A V-shaped recovery is characterized by a **sharp economic decline followed by a quick and sustained recovery**.
- The **recession of 1953** is an example of a V-shaped recovery.

- A V-shaped recovery is different from an L-shaped recovery, in which the economy stays in a slump for a prolonged period of time.



Foreign Portfolio Investment

- It consists of securities and other financial assets **passively held by foreign investors**.
 - It does **not provide the investor with direct ownership** of financial assets and is relatively liquid depending on the volatility of the market.
 - Foreign portfolio investment is **part of a country's capital account** and is **shown on its Balance of Payments (BOP)**.
 - The BOP measures the **amount of money flowing from one country to other** countries over one monetary year.
- The investor **does not actively manage** the investments through FPIs, he does **not have control over the securities or the business**.
- The investor's goal is to create a quick return on his money.
- FPI is more liquid and **less risky than Foreign Direct Investment (FDI)**.
 - FDI is an investment made by a firm or individual in one country into business interests located in another country. FDI lets an investor **purchase a direct business interest** in a foreign country.
- FPI is often referred to as "**hot money**" because of its tendency to flee at the first signs of trouble in an economy.
- FPI and FDI are both important sources of funding for most economies. Foreign capital can be used to develop infrastructure, set up manufacturing facilities and service hubs, and invest in other productive assets such as machinery and equipment, which contributes to economic growth and stimulates employment.

Note:

RBI Cancels Licence of CKP Co-op Bank

Why in News

Recently, the **Reserve Bank of India (RBI)** has cancelled the licence of Mumbai-based CKP Co-operative Bank.

Key Points

- RBI has cancelled the licence of the bank as the financial position of the bank was highly adverse and unsustainable.
 - The bank failed to meet the regulatory requirement of maintaining a **minimum capital adequacy ratio** of 9 % and reserves.
- RBI has asked the **Registrar of Co-operative Societies, Maharashtra** to start the process of winding up operations of CKP Co-operative bank and appoint a liquidator.
 - On liquidation, every depositor of the bank is entitled to get up to Rs 5 lakh from the **Deposit Insurance and Credit Guarantee Corporation**.
- In September last year, **RBI had imposed restrictions on Punjab and Maharashtra Co-operative (PMC) Bank** not to do any business for six months after it found major irregularities, which included financial irregularities, complete failure of internal control and systems, and wrongdoing and under-reporting of its lending exposure.

Capital Adequacy Ratio

- Capital Adequacy Ratio (CAR) is the **ratio of a bank's capital in relation to its risk weighted assets and current liabilities**. It is also known as **Capital-to-Risk Weighted Asset Ratio (CRAR)**.
- It is decided by central banks to prevent commercial banks from taking excess leverage and becoming insolvent in the process.
- The **Basel III norms** stipulated a capital to risk weighted assets of 8%.
- However, as per **RBI** norms, Indian scheduled commercial banks are required to maintain a CAR of 9%.

Deposit Insurance and Credit Guarantee Corporation

- DICGC came into existence in 1978 after the merger of Deposit Insurance Corporation (DIC) and Credit

Guarantee Corporation of India Ltd. (CGCI) under the **Deposit Insurance and Credit Guarantee Corporation Act, 1961**.

- It serves as a **deposit insurance and credit guarantee** for banks in India.
- It is a fully owned subsidiary of and is governed by the **Reserve Bank of India**.
- DICGC charges 10 paise per Rs. 100 of deposits held by a bank. The premium paid by the insured banks to the Corporation is paid by the banks and is not to be passed on to depositors.
- DICGC last revised the deposit insurance cover to Rs. 5 lakh in Feb, 2020, raising it from Rs. 1 lakh since 1993. The protection cover of deposits in Indian banks through insurance is among the lowest in the world.
 - The **Damodaran Committee on 'Customer Services in Banks' (2011)** had recommended a five-time increase in the cap to Rs.5 lakh due to rising income levels and increasing size of individual bank deposits.
- Banks, including regional rural banks, local area banks, foreign banks with branches in India, and cooperative banks, are mandated to take deposit insurance cover with the DICGC.

Co-operative Banking

- A **Co-operative bank** is a financial entity which belongs to its members, who are at the same time the owners and the customers of their bank. It is **distinct from commercial banks**.
- Co-operative banks in India are registered under the **States Cooperative Societies Act**. The Co-operative banks are regulated by both **Registrar of Co-operative Societies** and **Reserve Bank of India (RBI)** and **governed by the**
 - Banking Regulations Act 1949.
 - Banking Laws (Co-operative Societies) Act, 1955.
- **Features of Cooperative Banks:**
 - **Customer Owned Entities:** Co-operative bank members are both customer and owner of the bank.
 - **Democratic Member Control:** Co-operative banks are owned and controlled by the members, who democratically elect a board of directors. Members usually have equal voting rights, according to the cooperative principle of "one person, one vote".

Note:



- **Profit Allocation:** A significant part of the yearly profit, benefits or surplus is usually allocated to constitute reserves and a part of this profit can also be distributed to the co-operative members, with legal and statutory limitations.
 - **Financial Inclusion:** They have played a significant role in the financial inclusion of unbanked rural masses.
- Co-operative Banks are broadly **classified into Urban and Rural co-operative banks** based on their region of operation.

Difference between UCBs and Commercial Banks

- **Regulation:** Unlike commercial banks, UCBs are **only partly regulated by the RBI**. Their banking operations are regulated by the RBI, which lays down their capital adequacy, risk control and lending norms. However, their management and resolution in the case of distress is regulated by the **Registrar of Co-operative Societies** either under the State or Central government.
- **Borrower can be a Shareholder:** In general for a commercial bank, there is a clear distinction between its shareholders and its borrowers whereas in a UCB, borrowers can even double up as shareholders.

Co-operative Banks Under Sarfaesi Act

Why in News

Recently, the Supreme Court held that **Co-operative banks** established under a State law and multi-State level co-operative societies come within the ambit of the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (Sarfaesi) Act of 2002.

Key Points

- **Conflicting decisions by high courts:** The judgment came in view of several conflicting decisions by high courts on the issues of
 - Whether the Co-operative banks can be called 'Banks (financial Institution)' under the Banking Regulation Act of 1949 or,
 - Whether the Parliament has legislative competence to regulate financial assets of cooperative banks formed under state law.

- The argument was that under Lists I and II of the 7th Schedule, the Constitution provides for distinct fields of legislative entries for the state legislature and Parliament and once there is already a valid law made by the state referring to its own field, there should not be a parallel parliamentary law on the same topic.

➤ Supreme Court verdict:

- Upholding the central government notification of January 28, 2003 which brought co-operative societies within the purview of the Sarfaesi Act, the Supreme court said **Co-operative banks come within the definition of "Banks" under the Banking Regulation Act, 1949** for the purposes of the Sarfaesi Act.
 - **The recovery procedure under the Sarfaesi Act is also applicable to co-operative banks** and there is no clash with the Banking Regulation Act, 1949.
- The court also ruled that the Parliament has legislative competence to provide procedures for recovery of loans under the Sarfaesi Act with respect to cooperative banks.
- The court was of the opinion that recovery of dues would be an essential function of any financial institution and co-operative banks cannot carry on any activity without compliance of provisions of the banking Act and any other legislation applicable to such banks and the RBI Act.

Sarfaesi Act

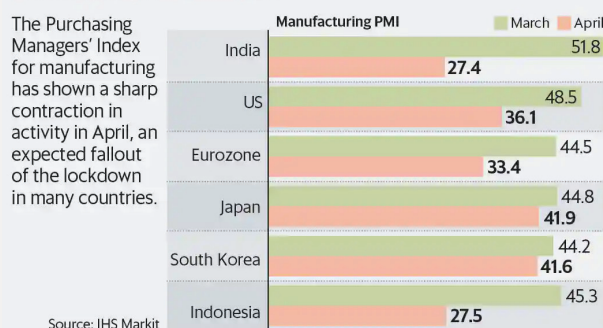
- Banks utilize Sarfaesi Act as an effective tool **for bad loans (Non Performing Asset) recovery**.
- The Sarfaesi Act is effective **only against secured loans** where banks can enforce the underlying security.
- Following are the main objectives of the Sarfaesi Act.
 - Provides the legal framework for securitization activities in India.
 - It gives the procedures for the transfer of NPAs to asset reconstruction companies for the reconstruction of the assets.
 - Enforces the security interest without Court's intervention.
 - Gives powers to banks and financial institutions to take over the immovable property that is pledged to enforce the recovery of debt.

Note:

- Major feature of Sarfaesi is that it promotes the setting up of asset reconstruction companies (ARCs) and asset securitization companies (SCs) to deal with NPAs accumulated with the banks and financial institutions.
- The Act provides three alternative methods for recovery of non-performing assets, namely:
 - Securitisation
 - Securitization is the practice of pooling together various types of debt instruments (assets) such as mortgages and other consumer loans and selling them as bonds to investors.
 - **Asset Reconstruction**
 - Asset reconstruction is the activity of converting a bad or non-performing asset into performing asset with the help of Asset reconstruction companies.
 - Enforcement of Security without the intervention of the Court.
 - If the borrower defaults, the bank may enforce security interests by:
 - Take possession of the security;
 - Sale or lease or assign the right over the security;
 - Appoint Manager to manage the security;
 - Ask any debtors of the borrower to pay any sum due to the borrower.

- **Export orders** have also witnessed a sharp decline.
- There was also **evidence of supply-side disruption** due to the lockdown.
- The **PMI slipped into contraction mode**, after remaining in the growth territory for 32 consecutive months.
 - In PMI's language, a reading above 50 means expansion, while a score below that denotes contraction.
- According to the **12-month outlook for production** the demand will rebound once the Covid-19 threat is diminished and lockdown restrictions are eased.
- The **Index(PMI)** is compiled by **IHS Markit** for more than 40 economies worldwide. IHS Markit is a global leader in information, analytics and solutions for the major industries and markets that drive economies worldwide.

Listless in lockdown



Manufacturing Hits Record Low

Why in News

According to a recent **IHS Markit India** monthly survey, Manufacturing **Purchasing Managers' Index (PMI)** fell to 27.4 in April, 2020 from 51.8 in March, 2020.

Key Points

- India's **manufacturing sector activity** has witnessed **contraction** in April, 2020 due to national lockdown restrictions.
 - The new **business orders** have **collapsed** at a record pace **severely hampering the demand**.
 - This is the **sharpest deterioration** in business conditions across the manufacturing sector since data collection began over 15 years ago.
- The deteriorating demand conditions has led the **manufacturers to drastically cut back staff numbers**.

Purchasing Managers' Index

- Purchasing Managers' Index (PMI) is an indicator of business activity - both in the manufacturing and services sectors.
 - It is **calculated separately** for the manufacturing and services sectors and then a **composite index** is also constructed.
 - The PMI summarizes whether **market conditions as viewed by purchasing managers** are expanding, neutral, or contracting.
- The purpose of the PMI is to provide information about **current and future business conditions to company decision makers, analysts, and investors**.
- The PMI is a number from 0 to 100.
 - PMI **above 50 represents an expansion** when compared to the previous month;
 - PMI **under 50 represents a contraction**, and
 - A reading at 50 indicates no change.

Note:



- The PMI is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.
- It is **different from the Index of Industrial Production (IIP)**, which also gauges the level of activity in the economy.

Index of Industrial Production

- The Index of Industrial Production (IIP) is an index which details out the growth of various sectors in an economy such as mineral mining, electricity, manufacturing, etc.
- It is compiled and published monthly by the **National Statistical Organisation (NSO), Ministry of Statistics and Programme Implementation.**
- The **Base Year of the Index of Eight Core Industries** has been revised from the year 2004-05 to 2011-12 from April, 2017.
 - The eight core industries comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).
 - The eight Core Industries in decreasing order of their weightage: Refinery Products > Electricity > Steel > Coal > Crude Oil > Natural Gas > Cement > Fertilizers.

Difference between PMI and IIP

- IIP covers the **broader industrial sector compared to PMI.**
 - IIP shows the **change in production volume** in major industrial sub sectors like manufacturing, mining and electricity.
 - Similarly, the IIP also gives **use based (capital goods, consumer goods etc) trends in industrial production.**
- **PMI is more dynamic compared to a standard industrial production index.**
 - The PMI senses dynamic trends because of the variable it uses for the construction of the index compared to **volume based production indicators like the IIP.**
 - For example, new orders under PMI show growth oriented positive trends and not just volume of past production that can be traced in an ordinary Index of Industrial Production.

MSMEs and Covid-19

Why in News

The **Covid-19 pandemic** has left its impact on all sectors of the economy including the **Medium, Small and Micro Enterprises (MSMEs)** sector.

- Earlier the government had declared the relief package namely, the **PM Garib Kalyan Yojana** for the poor to help them fight the battle against **Coronavirus (Covid-19)**, the second package is expected to primarily focus on the MSME sector.

NEW LOOK MSMEs

CURRENT: LINKED TO INVESTMENT

	Manufacturing	Services
Micro	Up to ₹25 lakh	Up to ₹10 lakh
Small	Over ₹25 lakh to ₹5 crore	Over ₹10 lakh to ₹2 crore
Medium	Over ₹5 crore to ₹10 crore	Over ₹2 crore to ₹5 crore



MANUFACTURING: Plant & machinery investment

Source: Ministry of MSME



SERVICES: Investment in equipment

PROPOSED: LINKED TO TURNOVER

Micro: Up to ₹5cr	Small: Over ₹5cr to ₹75cr	Medium: Over ₹75cr to ₹250cr
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MSMEs in India

- **Definition of MSMEs:**
 - In February 2018, the Union Cabinet decided the **criterion of an annual turnover (in line with the imposition of GST)** for defining MSMEs.
 - Formally, **MSMEs were defined in terms of investment in plant and machinery/equipment.** But this criterion for the definition was criticized because credible and precise details of investments were not easily available by authorities.
 - According to the proposed definition (which is yet to be formally accepted), the categorisation would be:
 - **Micro Enterprise** : An annual turnover **less than Rs 5 crores.**
 - **Small Enterprise** : An annual turnover **between Rs 5 crores and Rs 75 crores.**
 - **Medium Enterprise**: An annual turnover **less than Rs 250 crores.**

Note:

➤ **Statistical Data about MSMEs in India:**

- **Total Number of MSMEs:** According to the Annual Report of the Department of MSMEs (2018-19), there are **6.34 crore** MSMEs in the country.
- **Rural-Urban Distribution:** Around 51% of these are situated in rural India and 49% of them are situated in urban India.
- **Employment:** Both rural and urban MSMEs together employ over 11 crore people but 55 % of the employment happens in the urban MSMEs.
- **Category-wise Distribution:** 99.5% of all MSMEs fall in the micro category. While micro enterprises are equally distributed over rural and urban India, small and medium ones are predominantly in urban India.
- **Social Distribution of MSMEs:** About 66 % of all MSMEs are owned by people belonging to the Scheduled Castes (12.5%), the Scheduled Tribes (4.1%) and Other Backward Classes (49.7%).
- **Gender Ratio in MSMEs:** The gender ratio among employees is largely consistent across the board at roughly 80% male and 20% female.
- **Geographical Distribution:** Seven Indian states account for 50 % of all MSMEs. These are Uttar Pradesh (14%), West Bengal (14%), Tamil Nadu (8%), Maharashtra (8%), Karnataka (6%), Bihar (5%) and Andhra Pradesh (5%).

Problems Faced by MSMEs in India

- **Too Small to get Registered:**
 - Being out of the formal network, these MSMEs do not have to maintain accounts, pay taxes or adhere to regulatory norms etc., which brings down their costs. But in a time of crisis, it also constrains a government's ability to help them.
- **Lack of Financing:**
 - Most of the MSME funding comes from **informal sources** and it explains why the **Reserve Bank of India's** efforts to push more liquidity towards the MSMEs have had a **limited impact**. Also, the **government has launched schemes** in this regard.
 - Further, banks dither from extending loans to MSMEs due to the **high ratio of bad loans**.
 - According to a 2018 report by the **International Finance Corporation (part of the World Bank)**, the formal banking system supplies less than one-third

(or about Rs 11 lakh crore) of the MSME credit need that it can potentially fund.

➤ **Delays in Payments to MSMEs:**

- It is one of the biggest reasons for financial turmoil in the MSME sector.
- MSMEs face delays in payment from their buyers which also includes the government. It also faces delays in GST refunds.

Problem Aggravated due to Covid-19

- **Declining Revenues:** **MSMEs are already struggling**, in terms of declining revenues and capacity utilisation, in the lead-up to the Covid-19 crisis.
- **Unavailability of Cash:** The total lockdown has raised an issue of the **existence of MSMEs** primarily due to **unavailability of cash** which subsequently will result in the **job losses**.
- **Lack of Labour Availability:** The return of migrant labourers will create an issue of **lack of labour availability**.
- **Loan Against Collateral :** Loans to MSMEs are mostly given against property (as collateral) but in times of crisis, property values fall and that inhibits the extension of new loans.
- **Steps Taken:** To ease the firms' financial distress during this period, the Reserve bank of India has announced several measures such as a moratorium on term loans, and easier working capital financing. Some public sector banks have also opened up emergency credit lines for businesses.

Way Forward

- The government can provide tax relief (GST and **corporate tax**), give swifter refunds, and provide liquidity to rural India (may be through **PM-Kisan**) to boost demand for MSME products.
- A credit guarantee by the government can help as it assures the bank that its loan will be repaid by the government in case the MSME falters. If such defaults happen, credit guarantees are shown as a departmental expense in the Budget.

Helicopter Money

Why in News

Recently, the Telangana Chief Minister suggested

Note:



that the **helicopter money** can help states to come out of the economic chaos created by **Covid-19 pandemic**.

Key Points

- **Helicopter money:**
 - It is an unconventional **monetary policy tool**, which involves **printing large sums of money and distributing it to the public**, to stimulate the economy during a recession (decline in general economic activity) or when interest rates fall to zero.
 - Under such a policy, a central bank “directly increases the money supply and, via the government, distributes the new cash to the population **with the aim of boosting demand and inflation**”.
 - The term was coined by **American economist Milton Friedman**. It basically denotes a helicopter dropping money from the sky.
- **Difference between helicopter money and quantitative easing:**
 - Helicopter money should **not be confused with quantitative easing**, because both aim to boost consumer spending and increase inflation.
 - In case of **helicopter money**, currency is distributed to the public and there is **no repayment liability**.
 - Whereas in case of **quantitative easing**, it involves the use of printed money by central banks to buy government bonds. Here the **government has to pay back for the assets that the central bank buys**.
- **Benefits of helicopter money:**
 - It does not rely on increased borrowing to fuel the economy, which means that it doesn't create more debt.
 - It boosts spending and economic growth more effectively than quantitative easing because it increases aggregate demand – the demand for goods and services – immediately.
- **Issues with helicopter money:**
 - It does not involve repayment liability, therefore many people argue that it's not a feasible solution to revive the economy.
 - It may lead to over-inflation.
 - It may devalue the currency in the foreign exchange market.

Relevance of the Consol Bonds amid Covid-19

Why in News

The **Covid-19 pandemic** and consequential national lockdown in the country has laid a grave impact on the Indian economy.

- Considering the above scenario, the **large stimulus needs to be introduced** by the government to pull back the economy where the required stimulus will exceed the current revenue receipts of the government.
 - The **stimulus** refers to attempts to use monetary or fiscal policy (or stabilization policy in general) to stimulate the economy.
- Thus, an introduction of a **Consol Bond** is one of the solutions for the government to fund the stimulus.

Background

- In the **Budget (2020)** before the pandemic, India projected a **deficit of Rs.7.96-lakh crore**.
- Further, the financial deficit is expected to **increase** by a wide margin due to **revenue shrinkage** from the coming depression accompanied by a **lack of disinvestment**.
- Though, **the government and RBI have announced various economic measures** to deal with the economic impact of nationwide lockdown but these measures are considered to be inadequate.
 - In addition to the planned expenditure, the government needs to spend nearly Rs. 5 lakh crore and Rs. 6 lakh crore as stimulus.

Consol Bonds

- **Description:**
 - Consol bond (also known as **perpetual bond**) is a **fixed income security with no maturity date**.
 - It is often considered a **type of equity, rather than debt**.
 - The major benefit of these bonds is that they **pay a steady stream of interest** payments forever. However, **these bonds can be redeemed at issuer's discretion**.
- **Notable Existence of Consol Bonds in the History:**
 - The console bonds were majorly used by the British government during **World War-I**.

Note:

- The bonds were issued in **1917** as the British government sought to raise more money to finance the ongoing cost of World War-I.
- In 2014, the British government, a century after the start of World War-I, paid out 10% of the total outstanding Consol bond debt.

Consol Bonds and

Current Indian Economic Scenario

- **Consol Bonds Instead of PM-CARES:**
 - The introduction of the Consol bonds would have been a better solution for the government if people would have invested in consol bonds instead of making donations to the **Prime Minister's Citizen Assistance and Relief in Emergency Situations (PM-CARES Fund)**. It could have made **citizens as active participants** in handling the economic scenario of the country.
 - Unlike PM-CARES, the proceeds of the bonds could have been used to **fulfil the various essential medical as well as economic requirements** of the country.
- **One of the Available Solutions:**
 - The fall of real estate and given the lack of safe havens outside of gold, the bond would offer a dual benefit as a **risk free investment for retail investors**.
 - An **attractive coupon rate for the bond or tax rebates** can also be an incentive for investors.
 - The government can consider a phased redemption of these bonds after the economy is put back on a path of high growth.

RBI's Gold Reserve Increased

Why in News

According to the '**Report on Management of Foreign Exchange Reserves**', the **Reserve Bank of India's** total holdings of gold reached 653.01 tonnes in the financial year 2019-20.

- The Reserve Bank of India publishes **half-yearly reports** on management of foreign exchange reserves as part of its efforts towards enhanced transparency and levels of disclosure.
- These reports are prepared half yearly with reference to the position as at end-March and end-September each year.

Key Points

- The RBI's total gold reserves were 612.56 tonnes in the preceding fiscal ended March 2019.
- The addition of 40.45 tonnes of gold has raised the value of gold reserves to \$30.57 billion by March 2020 from \$23.07 billion in March 2019.
- The **share of gold in the total foreign exchange (forex) reserves** rose from about 5.59% as of March 2019 to about 6.40% by March 2020.
 - India's Forex Reserve include: **Foreign Currency Assets, Gold reserves, Special Drawing Rights and Reserve position with the International Monetary Fund (IMF)**
- Around 360.71 tonnes of gold is held overseas in safe custody with the Bank of England and the Bank for International Settlements, while the remaining gold is held domestically.
- The gold reserves will help the central banks around the globe to focus on the measures needed to contain the economic impact of Covid-19.
- Gains or losses on valuation of **foreign currency assets and gold** due to movements in the exchange rates and/or price of gold are booked under a **balance sheet** head named the **Currency and Gold Revaluation Account (CGRA)**.
 - CGRA represents the value of the gold and foreign currency that the **RBI holds on behalf of India**.
 - It **shows funds that are available to compensate RBI's loss** in the value of gold and foreign exchange reserve holdings.
 - The balances in CGRA provide a **buffer** against exchange rate/gold price fluctuations.

Gold & Economy

- **As Currency:**
 - Gold was used as the world reserve currency up through most of the 20th century. The United States used the gold standard until 1971.
 - The paper money had to be backed up by equal amounts of gold in their reserves.
 - Although the gold standard has been discontinued, some economists feel that we should return to it due to the volatility of the U.S. dollar and other currencies.
- **As a hedge against inflation:**
 - The demand for gold increases during inflationary

Note:

times due to its inherent value and limited supply. As it cannot be diluted, gold is able to retain value much better than other forms of currency.

➤ **Strength of Currency:**

- When a country imports more than it exports, the value of its currency will decline.
- On the other hand, the value of its currency will increase when a country is a net exporter.
- Thus, a country that exports gold or has access to gold reserves will see an increase in the strength of its currency when gold prices increase, since this increases the value of the country's total exports.
 - Since, the central banks rely on printing more money to buy gold, they create an excess supply of the currency. This increases the supply and thereby reduces the value of the currency used to purchase it.

Mandis Under e-NAM Increased

Why in News

According to the recent data, the number of connected **mandis, or wholesale markets** under e-NAM has **increased upto 65%**.

- This increase is because of transport disruptions and social distancing requirements which have made physical mandi trade more difficult in recent times.

Key Points

- After the launch of e-NAM in 2016, its progress was slow, due to:
 - Many States did not amend their **Agricultural Produce Market Committee (APMC) Acts**.
 - Most **farmers were not part of the cooperatives** that would help aggregate the bulk quantity of produce needed to attract online buyers.
 - Most **mandis did not possess the infrastructure** to make the most of the platform.
- The Central Government recognised the potential of e-NAM in overcoming some of the hurdles of the lockdown, and **introduced some important new features in April, 2020:**
 - A trading module allowing **Farmer Producer Organisations (FPOs)** to trade produce directly

from their collection centres without bringing it to mandis.

- A **warehouse-based trading module**.
- A **logistics module** offering users trackable transport facilities through aggregators with access to 11 lakh trucks.
- On 1st May 2020, Agriculture Ministry had launched **integration of 200 e-NAM mandis from 7 States** including 1 new state of Karnataka being added on e-NAM.
- Now the total mandis under e-NAM has reached a total of around 950 across India from about 550 before lockdown.

e-NAM

- It is a pan-India electronic trading portal.
- It was launched in April 2016 with the **objective of integrating the existing Mandis to "One Nation One Market"** for agricultural commodities in India.
- It **networks the existing APMC mandis** to create a unified national market for agricultural commodities and has a **vision:**
 - To promote uniformity in agriculture marketing by streamlining procedures across the integrated markets.
 - Removing information asymmetry between buyers and sellers and promoting real time price discovery based on actual demand and supply.
- It provides for contactless remote bidding and mobile-based anytime payment for which traders do not need to either visit mandis or banks for the same.
- **Small Farmers Agribusiness Consortium (SFAC)** is the lead agency for implementing e-NAM.
 - It functions under the aegis of the Ministry of Agriculture and Farmers' Welfare.

CHAMPIONS Portal for MSME

Why in News

Recently, the Ministry of **Micro, Small and Medium Enterprises (MSME)** has launched CHAMPIONS portal.

Key Points

- The CHAMPIONS stands here for **Creation and Harmonious Application of Modern Processes for Increasing the Output and National Strength**.

Note:

- **Aim:** To assist Indian MSMEs march into the big league as National and Global CHAMPIONS by solving their grievances and encouraging, supporting, helping and hand holding them.
- Three basic **objectives:**
 - **Support:** To help the MSMEs in this difficult situation in terms of finance, raw materials, labour, permissions, etc.
 - **Explore:** To help them capture new opportunities like manufacturing of medical accessories and products like Personal Protection Equipments (PPEs), masks, etc.
 - **Promote:** To identify the sparks, i.e., the bright MSMEs who can not only withstand but can also become national and international champions.
- It is a **technology driven Control Room-Cum-Management Information System** which utilises modern information and communication technology (ICT) tools.
 - In addition to ICT tools including telephone, internet and video conference, the system is enabled by **Artificial Intelligence**, Data Analytics and Machine Learning.
 - It is also fully integrated on a real time basis with the Government of India's main grievances portal **Centralized Public Grievances Redress and Monitoring System** (CPGRAMS) and the Ministry's other web based mechanisms.
 - The entire ICT architecture is created in house with the help of the **National Informatics Centre**.
- A network of control rooms is created in the **Hub & Spoke Model**.
 - The Hub is situated in New Delhi in the Secretary MSME's office.
 - The spokes will be in the States in various offices and institutions of the Ministry.



Note:



drishti

International Relations

Highlights

- Permanent Mission to UN
- Virtual NAM Summit
- New Road to Kailash Mansarovar
- India-Nepal on Kailash Mansarovar Link Road
- Face-off Between India and China
- Currency Change in Iran
- Mission Sagar
- Financial Help by AIB to India

Permanent Mission to UN

Why in News

India has appointed **T S Tirumurti** as its **Permanent Representative** to the **United Nations (UN)**.

Key Points

➤ Permanent Mission to the United Nations

- It is the diplomatic mission that every member state deputed to the UN.
- It is headed by a Permanent Representative who is also referred to as the UN ambassador.
- According to **Article 1(7) of the Vienna Convention on the Representation of States** in their Relations with International Organizations of a Universal Character, 1975 it is a mission of permanent character, representing the State, sent by a State member of an international organization to the organization.
 - Other important Vienna Conventions are the [Vienna Convention on Diplomatic Relations, 1961](#) and the [Vienna Convention on Consular Relations of 1963](#).
- According to the UN General Assembly resolution 257(III) of 3rd December, 1948, permanent missions assist in the realization of the purposes and principles of the UN.
 - They keep the necessary liaison between the Member States and the Secretariat in periods between sessions of the different organs of the UN.
- UN Permanent Representatives are assigned to the UN headquarters in New York City, and at other offices in Geneva, Vienna and Nairobi as well.

➤ Indian Permanent Mission at the United Nations

- There are currently eight Indians in senior leadership positions at the UN at the levels of Under Secretary General and Assistant Secretary General.
- The first Indian delegates at the UN included statesman Arcot Ramasamy Mudaliar and freedom fighters Hansa Mehta, Lakshmi N. Menon and Vijayalakshmi Pandit
 - Mehta and Pandit were among the 15 women members of the Indian Constituent Assembly.
- India was among the select members of the UN that signed the United Nations Declaration at Washington on 1st January, 1942.
- India also participated in the historic UN Conference of International Organization at San Francisco from 25th April to 26th June, 1945.
- As a founding member of the United Nations, India strongly supports the purposes and principles of the UN and has made significant contributions to implementing the goals of the Charter, and the evolution of the UN's specialized programmes and agencies.

Arcot Ramasamy Mudaliar (1887-1976)

- One of the prominent lawyers of his time and joined the Justice Party in 1917.
- He was India's delegate to the San Francisco Conference.
- In 1946 he was elected the first President of the United Nations' Economic and Social Council (ECOSOC).
- He also served as the chair of the executive boards of the [World Health Organisation \(WHO\)](#) and [United Nations Educational, Scientific and Cultural Organization \(UNESCO\)](#).

Note:

Hansa Mehta (1897-1995)

- After studying Journalism and Sociology from England, she returned to India and served as the President of the Bhagini Samaj and played a crucial role during the campaign against the **Simon Commission**.
- She was the first woman to be elected to the Bombay Legislative Council in 1931.
- She represented India on the Nuclear Sub-Committee on the status of women in 1946.
- As the Indian delegate on the UN Human Rights Commission (now known as the **UN Human Rights Council**) in 1947-48, she was responsible for changing the language Justice Party of the Universal Declaration of Human Rights from “all men are created equal” to “all human beings”, highlighting the need for gender equality.

Lakshmi Menon (1899-1994)

- She was one of the founder members of the All India Women’s Conference.
- She was India’s delegate to the Third Committee in 1948 and argued forcefully in favour of non-discrimination based on sex and “the equal rights of men and women” in the in the **Universal Declaration of Human Rights**.
- In 1949-1950, she headed the UN Section on the Status of Women and Children.

Vijaya Lakshmi Pandit (1900-1990)

- She led the Indian delegation to the UN (1946-48 and 1952-53).
- In 1953, she became the first woman to be elected president of the UN General Assembly.
- In 1978, she was appointed the Indian representative to the UN Human Rights Commission.

Virtual NAM Summit

Why in News

The virtual **Non-Aligned Movement (NAM)** Contact Group Summit on “**United against Covid-19**” through video conferencing was held recently.

- The meeting was **convened at the initiative of President Ilham Aliyev of Azerbaijan, in his capacity as chair** of the Non Aligned Movement.
- Moreover 30 Heads of State and other leaders had joined the Summit. The Summit was also addressed

by the UN General Assembly president and **World Health Organisation (WHO)** chief.

- It was the first time that Prime Minister Narendra Modi participated in a NAM Summit since he assumed the office in 2014.
 - Prime Minister Narendra Modi **became the first Indian Prime Minister to skip the NAM Summit in 2016 and in 2019.**

Key Points

Adoption of the Declaration:

- The Summit adopted a Declaration underlining the **importance of international solidarity in the fight against Covid-19.**

Creation of Task Force:

- It also announced the creation of a ‘Task Force’ to identify needs and requirements of member States.
- A common database reflecting countries’ basic medical, social and humanitarian needs in the fight against Covid-19 will be created.

India’s Stand at the Summit

India’s Role in Fight Against Covid-19:

- India is regarded as the pharmacy of the world especially for affordable medicines.
- Despite its own needs during Covid-19 pandemic, it has ensured supply of medicines to 123 partner countries including 59 NAM members.
- India is also active in global efforts to develop remedies and vaccines for Covid-19.

Need for the New Template of Globalisation:

- India stated that Covid-19 has shown limitations of the existing international system. The world needs more representative international institutions and thus world order should be more representative.
- Thus, in the post-Covid world, a new template of globalisation, based on fairness, equality, and humanity is needed.

International Cooperation:

- NAM should call upon the international community and the WHO to focus on building health-capacity in developing countries.
- World needs to ensure equitable, affordable and timely access to health products and technologies for all.

Note:

➤ Other Issues:

- India also flagged the issues of “terrorism” and “fake news”, calling them “deadly viruses” at a time when the world fights the novel coronavirus.
- The above issues divide communities and countries creating difficult situations.

Non-Aligned Movement

- The Non-Aligned Movement was formed **during the Cold War** as an organization of States that did not seek to formally align themselves with either the United States or the Soviet Union, but sought **to remain independent or neutral**.
- The basic concept for the group originated in **1955** during discussions that took place at the **Asia-Africa Bandung Conference held in Indonesia**.
- The Non-Aligned Movement was founded and held its **first conference (the Belgrade Conference) in 1961** under the leadership of **Josip Broz Tito of Yugoslavia, Gamal Abdel Nasser of Egypt, Jawaharlal Nehru of India, Kwame Nkrumah of Ghana, and Sukarno of Indonesia**.
- NAM **does not have a formal constitution or permanent secretariat**, and its administration is non-hierarchical and rotational. Decisions are made by consensus, which requires substantial agreement, but not unanimity.
- It has 120 members as of April 2018 comprising 53 countries from Africa, 39 from Asia, 26 from Latin America and the Caribbean and 2 from Europe (Belarus and Azerbaijan). There are 17 countries and 10 international organizations that are Observers at NAM.
- The purpose of the organization was enumerated in the **Havana Declaration of 1979** to ensure “the national independence, sovereignty, territorial integrity and security of non-aligned countries” in their struggle against imperialism, colonialism, neo-colonialism, racism, and all forms of foreign subjugation.

New Road to Kailash Mansarovar

Why in News

Recently, the **Defence Minister of India** has inaugurated a new **80-km road in Uttarakhand** connecting the **Line of**

Actual Control (LAC) and opening a new route for **Kailash Mansarovar yatra via Lipulekh Pass (China border)**.

- It is scheduled to be completed by December 2022 and will significantly reduce the travel time for pilgrims.

Key Points

- The Link Road is named as the **Kailash-Mansarovar Yatra Route** under which the **Border Roads Organisation (BRO)** achieved road connectivity from **Dharchula (Pithoragarh, Uttarakhand) to Lipulekh**.
 - Lipulekh Pass also known as **Lipu-Lekh Pass/ Qiangla or Tri-Corner** is a high altitude mountain pass situated in the **western Himalayas** with a height of 5,334 metre or 17,500 feet.
 - It is an **International mountain pass** between **India, China and Nepal**.
- The road was made under directions of the **China Study Group (CSG)** and is funded by **Indo-China Border Road (ICBR)**.
- It was approved by the **Cabinet Committee on Security (CCS)** in **2005**.
- The last 5-km of the road could not be finished due to a **temporary ban** placed on the **last-mile connectivity** in 2016 by the **Director General Military Operations**, which is yet to be lifted.
- **Advantages:**
 - It is the **shortest and cheapest route** with just **one-fifth distance** of road travel as compared to other old routes. The other route is via Sikkim.
 - There is **no air travel involved** and the **majority of the travel (84%) is in India** and only 16% in

Kailash Mansarovar

- To Hindus it is the **earthly embodiment** of the dominant mountain of heaven, Meru, and the residence of **Lord Shiva** and his consort Goddess Parvati.
- The Kailash range’s supreme peak lies in the **Chinese-occupied Tibet** at the height of **6,675 meters**.
- The pilgrimage to **Kailash** and to the sacred **Mansarovar** lake that lies 30 km to its south, is run exclusively by a government organization, the **Kumaon Mandal Vikas Nigam (KMVN)**.
 - The organization works in collaboration with the Government of India’s Ministry of External Affairs and the Government of China.

Note:

China compared to other routes where 80% road travel is in China.

- Except for a 5-km trek, **whole travel will be on vehicles** reducing the 5-day trek to 2- days road travel.

India-Nepal on Kailash Mansarovar Link Road

Why in News

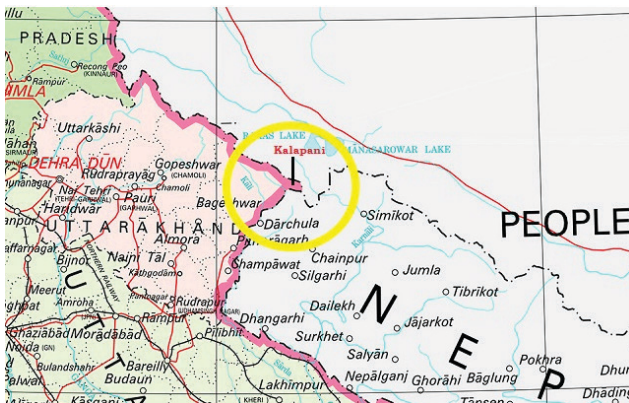
Nepal has strongly objected to the **newly inaugurated link road** which connects Pithoragarh (Uttarakhand) to Lipulekh pass (China border) significantly reducing the time of Kailash Mansarovar Yatra.

- Nepal claims the territory at the **Lipulekh pass around 400 sq km area east of Kali river in the tri-junction of Nepal, Tibet and India**, through which the road passes as its own.

Key Points

➤ Nepal's Stand

- Nepal referred to the 2014 agreement between Prime Ministers of both countries, for Foreign Secretaries to work out the “**outstanding boundary issues**” on Kalapani (where Lipulekh lies) and Susta (bordering Bihar).
 - According to Nepal's Foreign Ministry, the unilateral decision to build a road there, is a breach of the 2014 agreement.
- For evidence, Nepal has the maps during the 1816 Sugauli treaty and other complementing treaties that followed, fixing that Limpiadhura, Kalapani and Lipulekh were shown east of Kali river and part of Nepal.



- These arrangements were made following Nepal's war with the British due to which Nepal had to cede a large part of territory which currently forms the present Uttarakhand.

- Nepal seeks to question China as well because China and India had signed an agreement in May 2015 to develop Lipulekh as a commercial passage without consulting Nepal which majorly affected the **triangulation** of the countries.
- The government of Nepal remains committed to seek diplomatic solutions to the boundary issues on the basis of historical treaty, documents, facts and maps in keeping with the spirit of close and friendly **bilateral ties between the two countries**.

Kali River

- It is also known as Sharda river or Kali Ganga in Uttarakhand.
- It joins Ghagra river in Uttar Pradesh, which is a tributary of Ganga.
- River Projects: Tanakpur hydro-electric project, Chameliya hydro-electric project, Sharda Barrage.

Lipulekh Pass

- It is also known as Lipu-Lekh Pass/Qiangla or Tri-Corner is a high altitude mountain pass situated in the western Himalayas with a height of 5,334 metre or 17,500 feet.
- It is an International mountain pass between India, China and Nepal.

➤ India's Response

- According to India's Ministry of External Affairs, the road going through Pithoragarh lies completely within the territory of India.
- The road follows the pre-existing route used by the pilgrims of the Kailash Mansarovar Yatra which has been made pliable for the ease and convenience of pilgrims, locals and traders, under the present project.
- India held that the boundary delineation exercise with Nepal is in process and it is committed to resolving outstanding boundary issues through diplomatic dialogue.

➤ Other Issues

- In November 2019, Nepal protested against the publication of **Indian maps that included the Kalapani area**.

Note:

- However, India rejected Nepal's contention, asserting that the map accurately depicts the sovereign territory of India.
- Both nations are in the process of scheduling foreign secretary-level talks, which will be held once dates are finalised after the two governments have successfully dealt with the challenge of **Covid-19**.

Face-off Between India and China

Why in News

Recently, Indian and Chinese troops engaged in a **temporary and short duration face-off** along the **Line of Actual Control (LAC)** at **Naku La (Sikkim)** and **near Pangong Tso Lake (Eastern Ladakh)**.

Naku La

- Naku La sector is a pass at a height of more than 5,000 metres above Mean Sea Level (MSL) in the state of Sikkim.
 - It is located ahead of Muguthang or **Cho Lhamu (source of River Teesta)**.
- At Muguthang, the road on the Chinese side is motorable, and on the Indian side, it is a remote area.
- The other passes located in the state of Sikkim are **Nathu La Pass and Jelep La Pass**.

Pangong Tso Lake

- Pangong Lake is located in the **Union Territory of Ladakh**.
- It is situated at a height of almost 4,350m, and is the **world's highest saltwater lake**.
- Extending to almost 160km, **one-third** of the Pangong Lake lies in **India** and the other **two-thirds** in **China**.

Key Points

- The temporary and brief face-offs occur because the **unresolved and undemarcated boundary issues**.
 - The **India-China border** shares the **3,488-km-long Line of Actual Control**.
- Both countries have differing perceptions owing to the **undemarcated boundary**, which lead to transgressions and face-offs as each side patrols up to the areas.
- Any such issue is resolved through the **mutually established protocols** to maintain peace and tranquillity

on the border. The resolving mechanism also involves the local **Border Personnel Meeting (BPM)**.

- These protocols with China have been established to resolve issues amicably at the local formation commander level.
- The recent clash happened three years after the **Doklam stand-off between India and China (2017)**, which was also experienced across the border in Sikkim.
 - Doklam, or Donglang in Chinese, is an area spread over less than a **100 sq km** comprising a plateau and a valley at the **trijunction** between **India, Bhutan and China**.
 - The Doklam issue was discussed in the **Wuhan Summit (2018)** and two nations decided to issue **"strategic guidance"** to their militaries to **strengthen communications** so that they can build trust and understanding.

McMahon Line	Line of Actual Control
The 890-km McMahon Line separating British India and Tibet was drawn by Sir Henry McMahon at the China-Tibet-Britain Simla Convention (1914) .	The Line of Actual Control (LAC) is the effective border between India and China.
The line marked out previously unclaimed/undefined borders between Britain and Tibet. Also the Line put Tawang (a region of the present Arunachal Pradesh) in the British empire.	LAC was supposed to divide areas under Indian and Chinese control since the end of the Sino-Indian War of 1962 .
The line was forgotten until the British government published the documents in 1937 . Subsequently, China refused to accept the line .	Unlike the LoC (between India and Pakistan), the LAC was not mutually agreed upon . This was because the war ended with a unilateral ceasefire by China .

Global Examples of Aggressive Diplomacy by China

- **Covid-19 Origin:**
 - China has been engaged in **aggressive diplomacy** with western countries, which have sought clarity on the origins of the **Covid-19 pandemic**

Note:

that has crippled the world economy, and led to almost four million people across the globe falling ill.

➤ **South China Sea:**

- It has also reported that China has established new administrative districts for the **Spratly and Parcel archipelagos** in the South China Sea.
- China has also named 80 islands and other geographical features in the sea, claiming sovereignty over underwater features in the contested region.

Currency Change in Iran

Why in News

Iran's parliament has passed a bill allowing the government to **slash four zeros from the rial** and authorizing its **replacement** with another basic unit of currency called the **toman (redenomination)**.

- Under the bill, Iran's national currency will be changed from the rial to the **Toman, which is equal to 10,000 rials**.
- **Redenomination:**
 - It is the process whereby a country's **currency is revalued due to significant inflation and currency devaluation**, or when a country **adopts a new currency** and needs to **exchange the old currency for a new one at a fixed rate**.
 - In simpler words, it is exchanging old currency for new currency, or changing the face value of existing notes in circulation.

Key Points

- Eliminating the four zeros was a **necessary action to simplify financial transactions**.
 - It would vastly simplify financial calculations by eliminating the need for Iranian shoppers to carry loads of rials to make purchases, which they have to do because of **inflation**.
- According to the **Iran's Students News Agency (ISNA)**, the bill needs to be approved by the



Guardian Council, a body of conservative clerics that supervises the Parliament.

- After its approval, the **Central Bank of Iran** will have **two years to implement** the change for removing rial from circulation and issuing toman instead.

Background

- This move comes after a **sharp fall in the value** of the currency as a result of **crippling US sanctions**.
- The currency has been **devalued 3,500 times since 1971**. It declined steadily since the **Iranian Revolution, 1979** brought the religious government to power.
- The idea of removing four zeros has been floated since 2008 but gained strength after **2018** when the **US exited Iran's 2015 nuclear deal and reimposed sanctions** and the **rial lost more than 60% of its value**.

Chronology of US-Iran Relations

- **1953: Overthrow of Mossadeq**
 - The US and British intelligence agencies planned a coup to oust Iran's democratically elected Prime Minister, Mohammad Mossadeq.
 - He sought to nationalise Iran's oil industry, which was against the US's capitalist interests.
- **1979: Iranian Revolution**
 - The **US-backed Shah of Iran**, Mohammed Reza Pahlevi was **forced to leave the country** in 1979, following months of demonstrations and strikes against his rule by secular and religious opponents.
 - This led to the return of Islamic religious leader Ayatollah Khomeini from exile and following a referendum, the **Islamic Republic of Iran** was proclaimed on 1st April 1979.
- **1979-81: US Embassy Hostage Crisis**
 - The US embassy in Tehran was seized by protesters in November 1979 and American hostages were held inside for 444 days.
 - The final 52 hostages were freed in January 1981, the day of US President Ronald Reagan's **inauguration** (ceremony to mark the commencement of a new 4-year presidential term).
- **2002-13: Nuclear Fears and Sanctions**
 - In 2002 an Iranian opposition group revealed that Iran was **developing nuclear facilities including a uranium enrichment plant**.

Note:

- In pursuance of this, several sanctions are imposed by the **United Nations (UN)**, the US and the **European Union (EU)** against Iran.
 - US President George Bush denounces Iran as part of an **“axis of evil”** with **Iraq** and **North Korea**.
- This causes Iran’s **currency to lose two-thirds of its value** in two years.
- **2013-16: Closer ties and a nuclear deal**
 - In September 2013, Iran’s new moderate President Hassan Rouhani took office.
 - In 2015, after a flurry of diplomatic activity, Iran agreed on a long-term deal on its nuclear programme- **Joint Comprehensive Plan of Action (JCPOA)** with a group of world powers known as the **P5+1** - the US, UK, France, China, Russia and Germany.
 - Under the accord, Iran **agreed to limit its sensitive nuclear activities** and allow in international inspectors in return for the lifting of crippling economic sanctions.
- **2018-19: US-Iran Tensions in current times**
 - **Policy of maximum pressure:** In May 2018, the US abandoned the nuclear deal and reinstated economic sanctions against Iran.
 - **Policy of strategic patience:** Iran acted with restraint, with thinking that by abiding by the nuclear deal it could get economic favour from the EU. However, this policy failed to work for Iran and thereby it began a counter-pressure campaign.
 - In June 2019, **Iranian forces shot down a US military drone over the Strait of Hormuz** and then began the cycle of response and escalation between the two countries.
- **Mauritius, Madagascar, Comoros and Seychelles** along with **La Réunion** are part of **Indian Ocean Commission**. **India has recently become an observer** to the Commission.
- This is the **first time that a single assistance mission is covering all island countries of the western Indian Ocean** in one go — **except Sri Lanka**, for which set of medicines have been airlifted.
- The assistance **is in line with India’s role as the first responder in the Indian Ocean region**.
 - It highlights the importance accorded by India to relations with her neighbouring countries and further strengthens the existing bond.
- The deployment is also in consonance with the Prime Minister’s vision of **Security and Growth for All in the Region (SAGAR)**.
- Under the Mission, India will
 - Deploy **Medical Assistance Teams** in Mauritius and Comoros, helping their Governments deal with Covid emergency and in case of Comoros, with **dengue fever** also.
 - Deliver **consignments of Covid related essential medicines** to Mauritius, Madagascar, Comoros and Seychelles and about 600 tonnes of food items to Maldives.
 - In addition, in case of Mauritius, a **special consignment of Ayurvedic medicines** is also being sent.
 - The consignments also include **Hydroxychloroquine tablets**.

Mission Sagar

Why in News

India has sent **Indian Naval Ship (INS) Kesari**, carrying food items and medical assistance teams, to countries in the southern Indian Ocean to deal with **Covid-19 pandemic** as part of a **“Mission Sagar”** initiative.

Key Points

- The countries including **Maldives, Mauritius, Madagascar, Comoros and Seychelles** had requested India for assistance in dealing with the Covid-19 pandemic.

SAGAR

- **Security and Growth for All in the Region (SAGAR)** was launched in 2015. It is India’s strategic vision for the Indian Ocean Region (IOR).
- Through SAGAR, India seeks to deepen **economic and security cooperation** with its maritime neighbours and assist in building their **maritime security capabilities**.
- Further, India seeks to safeguard its **national interests** and ensure Indian Ocean region to become **inclusive, collaborative and respect international law**.
- The key relevance of SAGAR emerges when seen in conjunction with India’s other policies impacting the maritime domain like **Act East Policy, Project Sagarmala, Project Mausam**, India as ‘net security provider’, **focus on Blue Economy** etc.

Note:



Financial Help by AIIB to India

Why in News

Recently, the **Asian Infrastructure Investment Bank (AIIB)** has approved **USD 500 million** for 'Covid-19 Emergency Response and Health Systems Preparedness Project' initiated by India.

- The project is expected to help India to respond to the Covid-19 pandemic and strengthen its public health preparedness.

Key Points

➤ Aim:

- The project intends to **slow down and limit the spread** of Covid-19 in India.
- It includes an immediate support for enhancement of disease detection capacities, oxygen delivery systems and medicines among others.
- The project also strives to strengthen India's **Integrated Disease Surveillance Program (IDSP)** and the capacity to effectively **manage future disease outbreaks**.
 - IDSP aims to strengthen/maintain decentralized laboratory based and IT enabled disease surveillance systems for epidemic prone diseases to monitor disease trends.
- It also aims to develop capacity and systems **to detect existing and emerging zoonoses** and upgrade viral research and diagnostic laboratories for testing and research.
 - As around **75% of new infectious diseases** begin with **human-to-animal contacts**.

➤ Beneficiaries:

- The project will cover all States and Union Territories across India and address the needs of infected people, at-risk populations, medical and emergency personnel and service providers, medical and testing facilities, and national and animal health agencies.

➤ Finances:

- The project is being financed by the World Bank and AIIB in the amount of \$1.5 billion, of which \$1.0 billion will be provided by the World Bank and \$500 million will be provided by AIIB.

➤ Implementation:

- It will be implemented by the **National Health Mission (NHM)**, the **National Centre for Disease Control (NCDC)** and the **Indian Council of Medical Research (ICMR)**.
 - NHM was launched by the government of India in 2013 subsuming the National Rural Health Mission and the National Urban Health Mission.
 - NCDC functions as the nodal agency in the country for disease surveillance facilitating prevention and control of communicable diseases under the Ministry of Health and Family Welfare.
 - ICMR is the apex body in India for the formulation, coordination and promotion of biomedical research.

Asian Infrastructure Investment Bank

- It is a **multilateral development bank** with a mission to improve **social and economic** outcomes in **Asia**.
- It is established by the AIIB **Articles of Agreement** (entered into force Dec. 25, 2015) which is a multilateral treaty. The Parties (57 founding members) to agreement comprise the Membership of the Bank.
- It is **headquartered in Beijing** and began its operations in January 2016.
- **India** joined AIIB in **2016** as a **regional member** of the Bank.
- The members of the Bank have now grown to 102 approved members worldwide.
 - Further, fourteen of the **G-20 nations** are AIIB members including France, Germany, Italy and the United Kingdom.
- By investing in sustainable infrastructure and other productive sectors in Asia and beyond, it connects people, services and markets that over time will impact the lives of billions and build a better future.



Note:

Science and Technology

Highlights

- *Luhman 16: Binary Brown Dwarf System*
- *Demo-2 Mission*
- *African Swine Fever in Assam*
- *1-D Simulation Code to Study Earth's Magnetosphere*
- *Development of the Nanomaterials Based Supercapacitors*
- *Long March 5B' Rocket by China*
- *Comparison of Measures Against Covid-19*
- *Covid-19 in States with High Swine Flu Rates*
- *Coronavirus Causes Blood Clots*
- *Silent Hypoxia*
- *Mathematical and Simulation Aspects of Covid-19*
- *UV Blaster*
- *COBAS 6800 Testing Machine*
- *Feluda Test for Covid-19*
- *ELISA Antibody Kits*
- *Ultraviolet Light and Viruses*
- *Automated UV Systems*
- *BiPAP Ventilator "SwasthVayu"*
- *Use of TB Drugs on Crops*
- *Aarogya Setu Data Access and Knowledge Sharing Protocol*

Luhman 16: Binary Brown Dwarf System

Why in News

Recently, a group of astrophysicists have found that the **closest known brown dwarf, Luhman 16A** shows signs of **cloud bands** similar to those seen on Jupiter and Saturn.

- They used the **technique of polarimetry** to determine the properties of atmospheric clouds outside of the solar system.

Polarimetry

- The concept of polarimetry technique was put forth by Indian astrophysicist Sujan Sengupta, that the **light emitted by a cloudy brown dwarf, or reflected off an extrasolar planet, will be polarised.**
- Polarimetry is the study of polarization. Polarization is a property of light that represents the direction that the light wave oscillates.
- When light is reflected off of particles it can favor a certain angle of polarization. By **measuring the preferred polarization of light** from a distant system, astronomers can deduce the **presence of clouds.**
 - However, in case of Luhman 16A, the researchers

have found the actual structure of the clouds (not only their presence).

- The polarimetry technique isn't limited to brown dwarfs. It can also be applied to exoplanets orbiting distant stars, or even stars. However, light from brown dwarfs is ideal for the study.

Luhman 16

- **Luhman 16A** is part of a **binary system (Luhman 16)** containing a second brown dwarf, **Luhman 16B**. This pair of brown dwarfs Luhman 16A and Luhman 16B **orbit each other.**
- It is situated at a distance of about **6.5 light years** from the Sun and the **third closest system to the Sun after Alpha Centauri and Barnard's star.**
- Despite the fact that Luhman 16A and 16B have similar masses and temperatures and presumably formed at the same time, **they show markedly different weather.**
- Luhman 16B shows **no sign of stationary cloud bands**, instead showing evidence of more **irregular, patchy clouds.**
 - Luhman 16B, therefore, has **noticeable brightness variations** as a result of its cloudy features, unlike Luhman 16A which has less brightness variation due to a band of clouds.
- Understanding the cloud system over a brown dwarf **can shed light on the pressure, temperature and climate** on the surface of the celestial body.

Note:



Brown Dwarfs

- Brown dwarfs are also called **failed stars**, because **their masses are heavier than planets but lighter than stars**.
- Due to their small masses, they are unable to **sustain fusion of their hydrogen** to produce energy.
- It is believed that some of the more massive brown dwarfs **fuse deuterium or lithium and glow faintly**.

Binary Stars System

- Binary stars are two stars orbiting a **common center of mass**.
- The brighter star is officially classified as the **primary star**, while the dimmer of the two is the **secondary star**. In cases where the stars are of equal brightness, the designation given by the discoverer is respected.
- They are very important in astrophysics because **calculations of their orbits allow the masses of their component stars to be directly determined**, which in turn allows other stellar parameters, such as radius and density, to be indirectly estimated.

Demo-2 Mission

Why in News

National Aeronautics and Space Administration (NASA) and SpaceX are set for the **Demo-2 mission** from the Kennedy Space Center in Cape Canaveral, Florida, USA.

- Demo-2 Mission will send astronauts to the [International Space Station \(ISS\)](#).

Key Points

- Under the Mission, astronauts Robert Behnken and Douglas Hurley will dock with ISS and then remain there for between one to four months, depending on the time of next mission.
- It is a part of **NASA's Commercial Crew Program**, which is a partnership to develop and fly human space transportation systems.
- SpaceX spacecraft named **Crew Dragon** will be used to take them into space.
 - It will be only the fifth class of US spacecraft to take human beings into orbit, after the Mercury, Gemini, Apollo and Space Shuttle programs.
- It is a high priority mission for the US which is clear by the fact that the mission is being carried out amidst [Covid-19 pandemic](#).

Project Mercury (1958-63)

- It was the first US man-in-space program.
- It was intended to orbit a manned spacecraft around Earth and to investigate man's ability to function in space.

Gemini Program (1962-66)

- Designed as a bridge between the Mercury and Apollo programs, it primarily tested equipment and mission procedures and trained astronauts and ground crews for future Apollo missions.

Apollo Program (1963-72)

- It was designed to land humans on the Moon and bring them safely back to Earth.
- Apollo 8 was the first manned mission to go to the moon. This mission did not land on the moon. It orbited the moon, then came back to Earth.
- Apollo 11 was the first moon landing mission. It landed on 20th July, 1969. The crew of Apollo 11 was Neil Armstrong, Michael Collins and Buzz Aldrin.

Space Shuttle Program (1981-2011)

- NASA's space shuttle fleet, Columbia, Challenger, Discovery, Atlantis and Endeavour, flew 135 missions and helped construct the ISS.
- The spacecraft carried people into orbit repeatedly, launched, recovered and repaired satellites, conducted cutting-edge research and built the largest structure in space.

- The mission is a major milestone for SpaceX, which is a private company founded by Elon Musk, who is the founder of Tesla.
 - It has established itself as the leader in the private space sector mainly due to its reusable rocket, the Falcon 9.

African Swine Fever in Assam

Why in News

The Centre has advised the Assam state government to go for culling of pigs affected by the [African Swine Fever \(ASF\)](#).

Key Points

- A few organised piggeries in Assam have been affected and the possible carrier could be humans.

Note:



- However, there is no confirmation on humans being the carrier of the virus.
- Earlier in April, there were reported deaths of pigs due to the [Classical Swine Fever](#) (CSF).
 - Classical Swine Fever is also known as hog cholera and is a contagious viral disease of domestic and wild swine.
 - Unlike Swine Flu (H1N1) that attacks humans, classical swine fever is a viral disease that affects pigs only. It can be controlled by proper vaccination of pigs in time.

African Swine Fever

- It is a highly contagious and fatal animal disease that infects and leads to an acute form of hemorrhagic fever in domestic and wild pigs.
- It was first detected in Africa in the 1920s.
- The mortality is close to 100% and since the fever has no cure, the only way to stop its spread is by culling the animals.
- ASF is not a threat to human beings since it only spreads from animals to other animals.
- ASF is a disease listed in the World Organisation for Animal Health (OIE) Terrestrial Animal Health Code and thus, reported to the OIE.

World Organisation for Animal Health

- OIE is an intergovernmental organisation responsible for improving animal health worldwide.
- In 2018, it had a total of 182 Member Countries. India is one of the member countries.
- OIE standards are recognised by the [World Trade Organization](#) as reference international sanitary rules.
- It is headquartered in Paris, France.

1-D Simulation Code to Study Earth's Magnetosphere

Why in News

Scientists at the **Indian Institute of Geomagnetism (IIG)** have developed a generalized **one-dimensional fluid simulation code** capable of studying a wide spectrum of coherent **electric field structures in near-earth plasma environments or earth's magnetosphere**.

- The developed simulation code is expected to help in planning of future space missions.

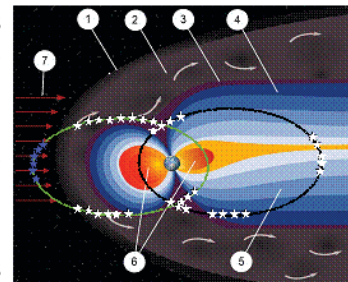
Key Points

➤ Formation of Earth's Magnetosphere:

- Sun is the major source of plasma deposition in space around the Earth. Thus, the **Sun forces some of its plasma towards the earth in the form of the solar wind**.
 - Plasma is the most common state of matter in the universe as a whole. It consists of a gas of ions and free electrons.
- The speed of solar wind varies between 300 to 1500 km/s, which carries with it a solar magnetic field, called the Interplanetary Magnetic Field (IMF).
- The **interaction of the IMF with the earth's magnetic field creates the magnetosphere** of the earth.
- The magnetosphere shields our home planet from solar and cosmic particle radiation, as well as erosion of the atmosphere by the solar wind - the constant flow of charged particles streaming off the sun.

➤ Regions of the Earth's Magnetosphere: The schematic diagram of Earth's magnetosphere shown consists of different regions namely,

1. **Bow shock** : It occurs when the magnetosphere of an Earth interacts with the nearby flowing ambient plasma such as the solar wind.



2. **Magnetosheath**: It is the region of space between the magnetopause and the bow shock of a planet's magnetosphere.
3. **Magnetopause** : It is the boundary between the planet's magnetic field and the solar wind.
4. **Northern tail lobe** : The magnetosphere of the earth contains two lobes, referred to as the northern and southern tail lobes. Magnetic field lines in the northern tail lobe point towards the earth.
5. **Southern tail lobe**: The magnetic field lines in the southern tail lobes point away from the earth. Usually, the tail lobes are almost empty, with few charged particles opposing the flow of the solar wind.
6. **Plasmasphere** : The plasmasphere, or inner magnetosphere, is a region of the Earth's magnetosphere consisting of low energy (cool) plasma.
7. **Solar winds**: It is a stream of charged particles released from the upper atmosphere of the Sun, called the corona.

Note:

- **Significance of Study of Plasma Processes:**
 - The plasma processes have the ability to hamper the working of a number of satellites that have been placed in orbit in the magnetospheric region.
 - However, the morphology of these plasma processes changes over space and time. These changes can be ideally deciphered only through computer simulations.
 - The study will help advance the knowledge of plasma waves, instabilities, and coherent effects associated with wave-particle interactions that are useful in planning future space missions.
 - It can also lead to precisely controlled fusion laboratory experiments for ever-expanding energy needs of humanity.

Indian Institute of Geomagnetism

- Indian Institute of Geomagnetism (IIG) is an autonomous institution functioning directly under the **Department of Science and Technology**.
- It has its main Campus at Panvel, **Navi Mumbai (Maharashtra)**.
- It conducts basic and applied research in Geomagnetism (study of dynamics of earth's magnetic field) and allied fields like Solid Earth Geomagnetism/ Geophysics, Magnetosphere, Space and Atmospheric Sciences.
- The Institute also **supports the World Data Centre for Geomagnetism (WDC, Mumbai)**, which is the only International centre for Geomagnetic data in South Asia and caters to the needs of Space and Earth Scientists and researchers from various universities and research institutions.

Development of the Nanomaterials Based Supercapacitors

Why in News

Recently, a group of researchers (including a recipient of the **INSPIRE Faculty Award**) have made significant achievements in **developing nanomaterials based supercapacitors to achieve high energy density and power density of supercapacitors**.

- **Energy density** is the amount of energy that can be

stored in a given mass of a substance or system, i.e. a measure of storage of energy.

- **Power density** is the amount of power (time rate of energy transfer) per unit volume, i.e. a measure of release of energy.

Energy: Batteries, Capacitors and Supercapacitors

- Like batteries, Capacitors are also used to **store energy**. While batteries rely on chemical reactions, capacitors use static electricity (electrostatics) to store energy.
- **Capacitors have many advantages over batteries:** they weigh less, generally don't contain harmful chemicals or toxic metals, and they can be charged and discharged many times. However, they cannot store the same amount of electrical energy as batteries.
- Supercapacitors, also known as EDLC (electric double-layer capacitor) or Ultracapacitors, differ from regular capacitors in that they **can store a huge amount of energy**.
- Batteries have a **higher energy density (they store more energy per unit mass)** but supercapacitors have a **higher power density (they can release energy more quickly)**. This property makes supercapacitors particularly suitable for **storing and releasing large amounts of power relatively quickly**.
- Supercapacitors deliver **quick bursts of energy during peak power demands** and then quickly store energy and capture excess power that's otherwise lost. In the example of an electric car, a supercapacitor can provide needed power for acceleration, while a battery provides range and recharges the supercapacitor between surges.

Key Points

- **Nanomaterials Based Supercapacitors:**
 - The researchers have been working on **carbon (Carbon Nanotubes, Graphene) nanomaterials** based supercapacitors to achieve **high energy density and power density of supercapacitors**.
 - High energy density of supercapacitors suggests that constant current can be withdrawn for a longer duration without recharging. Hence automobiles can run longer distances without charging.
 - Thus, researchers have developed a **reduced graphene oxide (rGO)** at a moderate temperature of 100°C with high capacitance performance. It is cost-effective and suitable for commercial purposes.

Note:



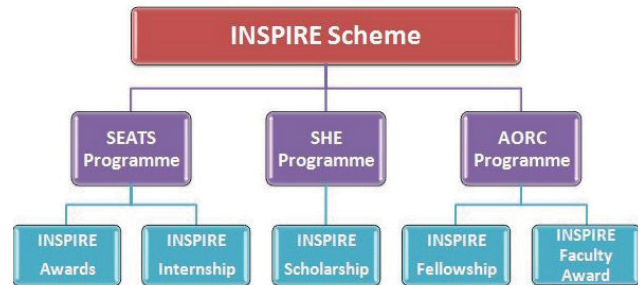
- The focus on energy devices paves the way for the development of **cost-effective and efficient devices, which can be used for energy storage application.**
- **Optoelectronic Applications of Nanomaterials:**
 - Optoelectronics is the study and application of electronic devices and systems that source, detect and control light, usually considered a sub-field of photonics.
 - The researchers are developing novel nanostructures of carbon for Surface-Enhanced Raman spectroscopy (SERS).
 - Surface-Enhanced Raman spectroscopy or surface-enhanced Raman scattering (SERS) is a surface-sensitive technique that **enhances Raman scattering by molecules adsorbed on rough metal surfaces** or by nanostructures such as plasmonic-magnetic silica nanotubes.
 - The enhancement factor can be as much as 10¹⁰ to 10¹¹, which means the technique may even detect a single molecule.
 - The SERS can help detect harmful molecules present in water at ultra-low concentrations.
 - The findings make way for materials which can be used as **advanced photodetectors** and also be used as **optical sensors for water pollution control.**

Innovation in Science

Pursuit for Inspired Research

- **Innovation in Science Pursuit for Inspired Research (INSPIRE)** intends to attract talent to study science at an early age, and to help the country build the required critical resource pool for strengthening and expanding the Science and Technology base with long term foresight.
- It is an India specific model for attracting talent with an aptitude for research and innovation, for a career in Basic & Natural sciences.
- The scheme has been developed by the **Department of Science & Technology (DST), Ministry of Science and Technology** and **approved in 2008.**
- INSPIRE Scheme has included three programs and five components. The three programmes are:
 - **Scheme for Early Attraction of Talent (SEATS):** It aims to attract talented youth to study science by providing INSPIRE Award of Rs 5000 to one million young learners of the age group 10-15 years.

- **Scholarship for Higher Education (SHE):** It aims to enhance rates of attachment of talented youth to undertake higher education in science intensive programmes, by providing scholarships and mentorship.
- **Assured Opportunity for Research Careers (AORC):** It aims to attract, attach, retain and nourish talented young scientific Human Resource for strengthening the R&D foundation and base.



Long March 5B' Rocket by China

Why in News

- Recently, China has successfully launched the **Long March 5B' rocket** and prototype spacecraft.
- It is being considered as China's successful step to operate a permanent space station and send astronauts to the Moon.
 - India is also planning to launch its own space station.
 - A space station is a spacecraft capable of supporting crew members, designed to remain in space for an extended period of time and for other spacecraft to dock.
 - One fully functional space station in the Earth's lower orbit is the International Space Station and astronauts conduct different experiments in it.

Key Points

- **Long March 5B' Rocket:**
 - It was launched from the Wenchang launch site in the southern island of Hainan.
 - It weighs 849 tonnes.
- **Unmanned Prototype Spaceship:**
 - It is expected to transport astronauts to a space station that China plans to complete by 2022 —

Note:



and eventually to the Moon. It will have capacity for a crew of six.

- **Future Missions by China:**
 - The assembly of the Tiangong space station is expected to begin in 2020 and finish in 2022.
 - China plans to send an astronaut to the Moon in about a decade and then build a base there.
 - The United States is so far the only country to have successfully sent humans to the Moon.

International Space Station (ISS)

- ISS is a habitable artificial satellite - the single largest man-made structure in low earth orbit. Its first component was launched into orbit in 1998.
- It circles the Earth in roughly 92 minutes and completes 15.5 orbits per day.
- The ISS programme is a joint project between **five** participating space agencies: **NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada)** but its ownership and use has been established by intergovernmental treaties and agreements.
- It serves as a microgravity and space environment research laboratory in which crew members conduct experiments in biology, human biology, physics, astronomy, meteorology, and other fields.
- Continuous presence at ISS has resulted in the longest continuous human presence in the low earth orbit.
- It is expected to operate **until 2030**.

Comparison of Measures Against Covid-19

Why in News

The **Oxford University** has created a **Stringency Index** which shows how strict a country's measures were and at what stage of the **Covid-19** spread, it enforced these.

- India enforced **one of the strongest lockdowns** at an early phase of case growth.

Stringency Index

- The Government Response Stringency Index is a composite measure based on various response indicators including school and workplace closures, stay-at-home policies and travel bans, rescaled to a **value from 0 to 100**.
 - A **higher index score** indicates a **higher level of stringency (100 = strictest response)**.
- It is among the metrics used by the Oxford Coronavirus Government Response Tracker (OxCGRT).
- The Tracker has a team of 100 Oxford community members who update a database of 17 indicators of government response.

Key Points

- The Index has found that India has one of the strongest lockdown measures in the world, at a 100 score since 22nd March, when the **nationwide lockdown** was first imposed.
 - It was **slightly relaxed** on 20th April after the government eased norms for certain workplaces in regions outside the red zones (zones with increasing rate of active cases).
- Other countries with a 100 score are Honduras, Argentina, Jordan, Libya, Sri Lanka, Serbia and Rwanda.
- **Death Curve and Stringency Score:**
 - The Index also provides an overlay of countries' death curve and their stringency score.
 - Eighteen countries were compared for the highest death count at the strongest measures.
 - Italy, Spain or France saw their deaths just begin to flatten as they reached their highest stringency.
 - China's death curve saw a little or no change after it put stronger measures.

Note:



- In the UK, the US and India, the death curve has not flattened even after imposition of the strictest measures.

➤ India's Comparison:

- India called its strict lockdown at a much earlier point on its case and death curves when compared to other countries with similar or higher case load.
 - While imposing lockdown, India had around 320 cases while others had more than 500 cases.
- Spain called for its strictest measures later in its case and death count than all others.
- Sweden has had the most liberal measures in this set and Iran the second most liberal.

➤ Response on WHO's Recommendations

- The researchers also examined if countries meet four of the six [World Health Organization's](#) (WHO) recommendations for relaxing physical distancing measures. The four of them are:
 - Control transmission to a level the healthcare system can manage.
 - The healthcare system can detect and isolate all cases (not just serious ones).
 - Manage transfer to and from high-risk transmission zones.
 - Community engagement.
- It was found that **no countries meet the four measured recommendations**, but 20 are close.
 - India scored 0.7 (below Australia, Thailand, Taiwan and South Korea) because it scored 0 for controlling its cases.
 - The highest scorers on this index, at 0.9, were Iceland, Hong Kong, Croatia and Trinidad & Tobago.

Covid-19 in States with High Swine Flu Rates

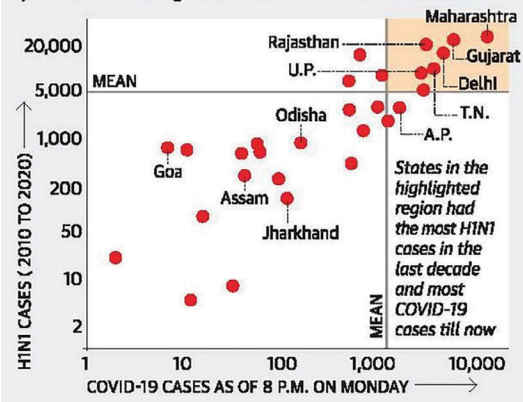
Why in News

Maharashtra, Gujarat, Rajasthan, Delhi and Tamil Nadu account for about 70% of India's confirmed Covid-19 cases till now.

- Data from the Health Ministry's [National Centre for Disease Control](#) (NCDC), show that these are **also the states** which consistently accounted for the **majority of Swine Flu (H1N1) cases**, since 2015.

Viral connection

Maharashtra, Gujarat, Rajasthan, Delhi and T.N., together account for about 68% of all COVID-19 cases and 63% of all the H1N1 cases recorded in the last decade. The chart plots H1N1 cases against COVID-19 cases for all States



- The NCDC recorded Swine Flu cases this year as well as part of India's [Integrated Disease Surveillance Programme](#).

Key Points

➤ Data History of Swine Flu

- **2019:** Rajasthan, Gujarat, Delhi and Maharashtra accounted for 54%.
- **2018:** Tamil Nadu, Maharashtra, Rajasthan and Gujarat accounted for 65%.
- Uttar Pradesh and Bihar are among India's most populous states and see intense [migration](#) to other states for work still they have not been in the top list always.

➤ Parallels between Covid-19 and Swine Flu

- Both are **caused due to pathogens** that trace their **origins to viruses from non-human hosts** even though they **belong to different families**.
 - Both **respiratory viruses** that **spread through contact**.
- Both **infiltrate the lungs** and cause characteristic **pulmonary infections** but they have varying lethality.
 - **Swine flu** infections have a **higher case fatality rate** (deaths per confirmed cases) and can cause significant **deaths in children as well as those less than 60**.
 - Covid-19 is relatively **more dangerous** to those **above 60** and **almost harmless in children**.
 - However, due to lack of sufficient research, it cannot be said which age group is safer or not.

Note:

- High number of Covid-19 and Swine Flu cases have been observed in Gujarat and Maharashtra.
 - The **relative dominance** of these diseases can be attributed to the **migration for work**.
- **Observations**
 - **February-March** are typical months for influenza (viral infection of upper or lower respiratory tract) in India.
 - Most influenza activity in **northern India** has been seen during the **summer** months but in **southern and western India**, cases occurred mostly during **winter** months.
 - According to scientists, due to the novel nature of Covid-19, the **possibility of another spike later in the year cannot be ruled out**.
 - For Swine flu, this year there is an **exceptional rise in testing and active surveillance** across states otherwise only few states have the infrastructure and system to actively report cases.
 - Maharashtra and Tamil Nadu have 50 testing laboratories each for Covid-19 many of which are also deployed for Swine flu.

Swine Flu

- It is caused by the **swine flu virus**, the **H1N1**.
- It is an **infection of the respiratory tract** characterized by the usual **symptoms of flu** like cough, nasal secretions, fever, loss of appetite, fatigue and headache.
- It is called swine flu because in the past it was known to occur in people who had been in the **vicinity of pigs**.
- The virus is **transmitted by short-distance airborne transmission**, particularly in crowded enclosed spaces. **Hand contamination** and **direct contact** are other possible sources of transmission.

Coronavirus Causes Blood Clots

Why in News

Recently, doctors around the world have noticed a raft of clotting-related disorders in **Covid-19** patients, which causes **benign skin lesions on the feet (Covid toe) to strokes** and blood-vessel blockages.

- Thus, Covid-19 is being seen as less of a typical respiratory disease and more of one that involves dangerous clotting.

Key Points

- **Misconception of Only Lung Damage:**
 - Initially, it was considered that the vast **majority of lung damage in Covid-19 patients was due to viral pneumonia**.
 - But the **autopsies** of the Covid-19 patients shows that **clumps of platelets inside blood vessels, or microthrombi**, to be the reason for rapid and dramatic deterioration of condition of patients.
- **Development of Thrombi:**
 - Usually these blood clots are called **thrombi** — that form in patients' arterial catheters and filters used to support failing kidneys.
 - The clots impede blood flow in the lungs, which develop severe blood-oxygen deficiency, causing difficulty in breathing.
- **Pulmonary Embolism:**
 - Studies have found that as many as **30% of severely ill Covid-19 patients** suffered a so-called **pulmonary embolism** — a potentially deadly blockage in one of the arteries of the lungs.
 - **Pulmonary embolism** often occurs when bits of **blood clots** from veins deep in the legs travel to the lungs.
 - According to a study, the prevalence of pulmonary embolism was 1.3% in critically ill patients without Covid-19.
- **Detection of Blood Clots:**
 - The D-dimer blood test is being used around the world to monitor clot formation in patients, including those with Covid-19, and patients are also being dosened with heparin and other anticoagulant medications.
- **History of Blood Clotting Diseases:**
 - The 1918 **Spanish flu** pandemic, caused by a novel strain of influenza, was also linked to downstream damage from clots that could end lives dramatically.
 - Viruses including HIV, dengue and **Ebola** are all known to make blood cells prone to clumping.
 - The pro-clotting effect may be even more pronounced in patients with the coronavirus.

Note:

Issues Involved

- **Lung damage:** If untreated, **large arterial lung clots can put overwhelming strain on the heart**, causing cardiac arrest.
 - Even **tiny clots in the capillaries of lung tissue** may interrupt blood flow, undermining attempts to help oxygenate patients with ventilators.
- **Vital organ damage:** Clots may form in other parts of the body, potentially damaging vital organs including the heart, kidneys, liver, bowel, and other tissues.
- **Mistaken of Covid-19 recurrence:** Covid-19 survivors who have subsequent difficulty breathing, might mistakenly believe it's a recurrence of coronavirus infection, when it may actually be a reactivation of the whole clotting problem.
- **Subsequent disease:** Pulmonary embolism also causes **pulmonary hypertension**, another dangerous complication that can cause fatigue and shortness of breath.
- **Risk:** Patients and doctors alike may not be aware of the risks or the potential need for treatment.

Silent Hypoxia

Why in News

Amidst the ongoing **Covid-19 pandemic**, medical practitioners have reported a condition called **silent or happy hypoxia**, in which patients have **extremely low blood oxygen levels**, yet they do not show signs of breathlessness.

- It has left medical practitioners confused and many of them are now advocating for its early detection as a means to avoid a fatal illness called **Covid pneumonia**.

Key Points

- **Hypoxia**
 - It is a condition wherein there is **not enough oxygen available to the blood and body tissues**.
 - Hypoxia can either be **generalised**, affecting the whole body, or **local**, affecting a region of the body.
 - **Normal arterial oxygen** is approximately **75 to 100 millimetres of mercury (mm Hg)** and **normal pulse oximeter readings** usually range from **95 to 100%**.

- Values under 90% are considered low.
- When levels fall below 90%, patients could begin experiencing lethargy, confusion or mental disruptions because of insufficient quantities of oxygen reaching the brain.
 - Levels below 80% can result in damage to vital organs.
- **Silent Hypoxia**
 - It is a form of oxygen deprivation that is **harder to detect** than regular hypoxia because **patients appear to be less in distress**.
 - **Covid pneumonia**, a serious medical condition found in severe Covid-19 patients, is **preceded by silent hypoxia**.
 - Many Covid-19 patients with oxygen levels below 80% look at ease and alert. There have been a few cases of oxygen levels below 50% as well.
 - Those with such low levels of oxygen would normally appear extremely ill but not in silent hypoxia cases.
 - In many cases, Covid-19 patients with silent hypoxia **did not exhibit symptoms such as shortness of breath or coughing until their oxygen fell to acutely low levels**, at which point there was a risk of **acute respiratory distress (ARDS)** and **organ failure**.
 - **Reasons:**
 - The reason why people are left feeling breathless is **not because of the fall in oxygen levels** itself but **due to the rise in carbon dioxide levels** that occur at the same time, when lungs are not able to expel this gas efficiently.
 - In some Covid-19 cases, this was not the response and patients did not feel breathless.
 - It happened because in patients with Covid pneumonia, the **virus causes air sacs to fall**, leading to a **reduction in levels of oxygen**. However, the **lungs initially do not become stiff or heavy with fluid** and **remain compliant** meaning they are **able to expel carbon dioxide** and avoid its buildup. Thus, **patients do not feel short of breath**.
 - A medical device called a **pulse oximeter** can be used in the early detection of silent hypoxia.
 - Active Covid-19 or suspected cases can check their oxygen levels early on by using the device.

Note:



- A fall in oxygen levels can serve as a signal for seeking additional treatment immediately.
- Concerns have been raised against it arguing that the frequent use of the device would lead to increased anxiety.

Pulse Oximeter

- It is a **test used to measure the oxygen level** (oxygen saturation) of the **blood**.
- The device measures the saturation of oxygen in **red blood cells** (RBCs) and can be attached to a **person's fingers, toes, nose, feet, ears or forehead**.
- The method is **easy and painless** and the device can be reused or disposed of after use.
- It is generally used to check the health of patients with known conditions that affect blood oxygen levels like heart and lung conditions.

Covid Pneumonia

- It is a **potentially deadly condition** in Covid-19 patients which affects the **lungs' ability to transfer oxygen** and **causes breathing difficulties**.
- When a person cannot inhale enough oxygen and exhale enough carbon dioxide, the pneumonia can lead to death.
- Covid pneumonia is **especially severe because it is viral** and it **completely affects the lungs instead of small parts**.
 - **Other kinds of pneumonia** which are **caused mainly by bacteria** and can be treated using antibiotics are **less severe** than Covid pneumonia.
- Patients are required to be **put on ventilator support** in such severe cases to ensure adequate circulation of oxygen in the body.

Mathematical and Simulation Aspects of Covid-19

Why in News

The Science and Engineering Research Board (SERB) has approved funding for 11 projects under the MATRICS scheme for studying mathematical modelling and computational aspects to tackle the Covid-19 pandemic.

- SERB is a statutory body under the Department of Science and Technology (DST), Government of India.

Key Points

- These studies attempt to propose mathematical/simulation models to account for various factors relevant to Covid-19 by modifying the basic SIR (Susceptible-Infected-Recovered) models.
 - An SIR model is an epidemiological model that computes the theoretical number of people infected with a contagious illness in a closed population over time.
 - The name of this class of models derives from the fact that they involve coupled equations relating the number of susceptible people, number of people infected, and number of people who have recovered.
- Some of such factors are heterogeneity of population, the role of asymptomatic (showing no symptoms) population, migration and quarantine, effect of social distancing and lockdown, socioeconomic factors and so on.
- **Aim**
 - To study Indian conditions and provide an estimate of Basic Reproduction Number (R0)- the qualitative indicator of the degree of contagiousness of the disease.
 - R0 tells the average number of people who will catch the disease from one contagious person.
 - The larger this number, the more contagious is the disease caused by the virus and the faster it will spread in the community.
- It also aims to identify the maximum likelihood infection tree when infection reports and contact network structure are known to the administration.
- To identify possible cures of Covid-19 through the study of DNA (DeoxyriboNucleic Acid) structures by creating patterns of DNA of different viruses.

MATRICS Scheme

- It was launched in 2017 by the Science and Engineering Research Board (SERB).
- It aims to provide fixed grant support to active researchers with good credentials in Mathematical Sciences, Theoretical Sciences and Quantitative Social Sciences.
- The support is provided in the form of research grant of Rs. 2 lakh per annum plus overheads for a period of three years.

Note:

UV Blaster

Why in News

Recently, the **Defence Research and Development Organisation (DRDO)** has developed an **Ultra Violet (UV) Disinfection Tower** for rapid and chemical free disinfection of high infection prone areas.

- The equipment named “**UV blaster**” is designed and developed by Laser Science & Technology Centre (LASTEC) with the help of M/s New Age Instruments and Materials Private Limited, Gurugram.
 - LASTEC is the Delhi based premier laboratory of DRDO.

Key Points

- The UV blaster is a UV based area sanitiser useful for **high tech surfaces** like electronic equipment, computers and other gadgets in laboratories and offices that are not suitable for disinfection with chemical methods.
- The product is also **effective for areas with large flow of people** such as airports, shopping malls, metros, hotels, factories, offices, etc.
- The UV based area sanitiser may be used by remote operation through laptop/mobile phone using wifi link.
- The sanitiser switches off on accidental opening of room or human intervention.
- It is also being considered as the key to arm operation.



Corona-Killer 100

- **Corona-Killer 100** is an automated disinfecting **Unmanned Aerial Vehicle (UAV)** developed by **Garuda Aerospace** - an ISO- 9001 company.
- These drones will aid in the sanitation of public places, hospitals and tall buildings up to 450 feet amid Covid-19 outbreak.
- It is equipped with fuel efficient motors that enable the drone to be deployed for 12 hours a day.
- Drone operations are faster, longer & safer than manual spraying by workers who can become potential carriers of Covid-19.

Drone as a Service

- Historically, many UAV applications were developed in the military as spy or reconnaissance vehicles used during wartime.
- However, the development of this type of aircraft has evolved towards commercial, civil and consumer spaces, including professional videography, surveying, construction, inspection, traffic management and last mile delivery.
- Commercial drone services are developing UAV services, sometimes called Drones as a Service (DaaS), to help industries, such as agriculture, construction, search and rescue, package delivery, industrial inspection, insurance and videography, with tasks like collecting imagery and measurements and managing or broadcasting events.
- Drone services seem cost-effective, portable, and – in extreme emergencies like Covid-19 can – provide the first take, including visuals, assessment and extent of damage.

- It also consists of patented autopilot technology, advanced flight controller systems.

COBAS 6800 Testing Machine

Why in News

The Union Health Minister inaugurated the first automated **coronavirus testing device named ‘COBAS 6800’**.

- This is the first such testing machine that has been procured by the Government for testing of Covid-19 cases and is installed at the **National Centre for Disease Control (NCDC)**.

Key Points

- COBAS 6800 is a **fully automated**, high end machine for performing **Real Time Polymerase Chain Reaction (RT-PCR) testing for Covid-19**.
- It will provide **quality, high-volume testing** as it can test around 1200 samples in 24 hours.
 - This will largely increase the testing capacity in the country.
- It is a sophisticated machine **enabled with robotics that minimizes the chance of contamination** as well as the risk of infection to the health care workers.

Note:

- The machine requires a minimum **Biosafety Level 2** (BSL2+) containment level for testing, thus it was placed at the NCDC.
 - BSL2+ covers laboratories that work with agents associated with human diseases (i.e. pathogenic or infectious organisms) that pose a moderate health hazard.
- The device **can also detect other pathogens** like Viral Hepatitis B & C, **HIV (Human Immunodeficiency Virus)**, **Mycobacterium Tuberculosis**, Papilloma, Cytomegalovirus (CMV) infection, Chlamydia (a bacterial infection), Neisseria (bacteria) etc.

National Centre for Disease Control

- It was formerly known as the **National Institute of Communicable Diseases (NICD)** and had its origin as the **Central Malaria Bureau**, established at **Kasauli** (Himachal Pradesh) in **1909**.
- NICD was transformed into NCDC with a larger mandate of controlling emerging and re-emerging diseases in **2009**.
- It functions as the **nodal agency** in the country for **disease surveillance, facilitating prevention and control of communicable diseases**.
- It is also a national level institute for **training specialized manpower** for public health, laboratory sciences and entomological services and is involved in various applied research activities.
- The Institute is under **administrative control of the Director General of Health Services**, Ministry of Health and Family Welfare.
- Headquarter: **New Delhi**.

Feluda Test for Covid-19

Why in News

Recently, the **Council of Scientific and Industrial Research's Institute of Genomics and Integrative Biology (CSIR-IGIB)** has developed **India's first paper strip test for Covid-19** namely, 'Feluda'.

Key Points

- **Description:**
 - The Feluda is a paper strip test that detects the coronavirus in an hour.
 - Feluda is an acronym for **FNCAS9 Editor Linked Uniform Detection**.

- It is expected to help to fulfil an urgent need of the rapid testing in India.
- It is the **first such indigenous test kit to be developed in India based on Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) technology**.
 - **CRISPR** is a **gene editing technology**, which replicates natural defence mechanisms in bacteria to fight virus attacks, using a **special protein called Cas9**.
 - CRISPR-Cas9 technology behaves like a cut-and-paste mechanism on DNA strands that contain genetic information. The specific location of the genetic codes that need to be changed, or edited, is identified on the DNA strand, and then, using the Cas9 protein, which acts like a pair of scissors, that location is cut off from the strand.
 - A DNA strand, when broken, has a natural tendency to repair itself. Scientists intervene during this auto-repair process, supplying the desired sequence of genetic codes that binds itself with the broken DNA strand.

➤ Comparison to the RT-PCR Test:

- **Working Principle:** The Feluda test uses the gene-editing tool-Crispr-Cas9 to target and identify genomic sequences of the novel coronavirus in suspected individual samples.
 - **RT-PCR test (Reverse Transcription Polymerase Chain Reaction)** detects the virus genetic material, which is the Ribonucleic acid (RNA).
- **Cost:** The Feluda test will cost less than Rs.500 compared to Rs. 4500 for the real-time PCR test which is currently being used for Covid-19 diagnosis in India.
- **Required Medical Machinery:** The Feluda test also does not rely on expensive real-time PCR machines for RNA isolation, DNA conversion, and amplification which are already in limited supply in the country.

ELISA Antibody Kits

Why in News

Recently, the Indian Council of Medical Research (ICMR) has approved the first batch of antibody testing kits called "**Covid KAVACH ELISA**" manufactured by Zydus-Cadila to be used in sero-survey.

Note:

Key Points

- Covid KAVACH ELISA has been developed at the National Institute of Virology, Pune, by isolating the virus from patients in India.
 - Enzyme-Linked Immunosorbent Assay (ELISA) is a test that detects and measures antibodies in blood.
 - The test can be used to determine antibodies related to certain infectious conditions.
 - It can be used to diagnose HIV, which causes AIDS, [Zika virus](#) etc.
- The ELISA kits will be used in the new nationwide “sero-survey” of the Ministry of Health.
 - Sero-survey is meant to detect the **prevalence of antibodies** that **appear after a patient has recovered**.
- According to the ICMR, real-time Reverse Transcription Polymerase Chain Reaction (RT-PCR) is still the frontline test for clinical diagnosis of [Covid-19](#), but the antibody tests are **critical for surveillance to understand the proportion of population exposed to infection**.
 - The antibody test for [Covid-19](#) acts as a screening process that gives quick results in a few hours.
 - The antibody test detects the body’s response to the virus. It gives an indication that a person has been exposed to the virus.
 - If the test is positive, the swab is collected and an Ribonucleic Acid (RNA) test is done using the Polymerase Chain Reaction (PCR) kit.
- ELISA antibody tests are different from the rapid antibody tests previously used by Indian authorities.
 - ELISA kits are more reliable and cheaper than rapid antibody testing kits.
 - The ELISA kit has a sensitivity of 98.7% and a specificity of 100%.
 - Sensitivity signifies accurate positive test results, whereas specificity signifies accurate negative test results.
 - According to the [World Health Organisation \(WHO\)](#) the kits are suitable for “for testing large numbers of samples per day, as well as in blood banks or for surveillance studies”.
- ELISA has **minimal biosafety and biosecurity requirements** as compared to the real-time RT-PCR test.
- Moreover, ELISA-based testing is easily possible even at the district level as the test kit has inactivated virus.

Antibody

- Antibody, also called immunoglobulin is a protective protein produced by the immune system in response to the presence of a foreign substance, called an antigen.
 - A wide range of substances are regarded by the body as antigens, including disease-causing organisms and toxic materials.
- Antibodies recognize and attack onto antigens in order to remove them from the body.

PCR Test

- Kary Mullis, the American biochemist invented the PCR technique. He was awarded the Nobel Prize for Chemistry in 1993.
- Under this, copies of a segment of DNA (deoxyribonucleic acid) are created using an enzyme called Polymerase.
 - The ‘chain reaction’ signifies how the DNA fragments are copied, exponentially — one is copied into two, the two are copied into four, and so on.
- A fluorescent DNA binding dye called the “probe” is added to DNA, which shows the presence of the virus on a [fluorometer](#).
- However, coronavirus is made of RNA (ribonucleic acid).
- Therefore to detect coronavirus, RNA is converted into DNA using a technique called reverse transcription.
 - A ‘reverse transcriptase’ enzyme converts the RNA into DNA.
- Copies of the DNA are then made and amplified.
- Generally, the entire process of PCR test takes 24 hours to deliver the result.

Ultraviolet Light and Viruses

Why in News

As nations begin relaxing restrictions, scientists are studying the use of **ultraviolet germicidal irradiation (UVGI)** to detect the virus in public places and disinfect contaminated public spaces to stop the transmission of the virus.

Note:

Key Points

➤ Ultraviolet Light:

- UV light from the sun has **shorter wavelengths** than visible light so it is **not visible to the naked eye**.
- UV radiation's full spectrum is **sourced from the sun** and can be **classified into UV-A, UV-B and UV-C** rays according to their wavelength.
- They differ in their biological activity and the extent to which they can penetrate the skin.
 - The **shorter the wavelength**, the **more harmful** the UV radiation.
 - However, **shorter wavelength** UV radiation is **less able to penetrate** the skin.
- Research shows that UV light kills cells and increased exposure can cause cells to become **carcinogenic** (cancerous) and increases the risk of getting **cancer**.

Classification of UV Radiation

➤ UV-C:

- **Short-wavelength.**
- Most harmful but are completely absorbed by the Earth's atmosphere and does not reach the Earth's surface.

➤ UV-B:

- **Medium-wavelength.**
- Biologically active but cannot penetrate beyond the superficial skin layers.
- Responsible for delayed tanning and burning.
- Enhances skin ageing and significantly promotes the development of skin cancer.
- Exposure to UV-B rays can cause DNA and cellular damage in living organisms.
- Most solar UVB is filtered by the atmosphere.

➤ UV-A:

- Relatively **long-wavelength.**
- Accounts for approximately 95% of the UV radiation reaching the Earth's surface.
- Penetrate into the deeper layers of the skin and is responsible for the immediate tanning.
- Enhances the development of skin cancers.

➤ UVGI Working Method:

- **UVGI replicates UV wavelengths** and uses its **destructive properties to target pathogens**.

- It disinfects contaminated spaces, air and water and helps in preventing certain infectious diseases from spreading.
- According to the **US Centers for Disease Prevention and Control (CDC)**, UVGI is a **promising method for disinfection**.
 - In 2005, the CDC revised its guidelines for using UVGI with regards to the spread of **tuberculosis (TB)** in hospital settings.
 - The guidelines intended to eliminate the spread of infection to healthcare workers from patients or others with unsuspected or undiagnosed infection.
- Scientists advise that **fixtures containing UVGI lamps** can be mounted on the walls or suspended from the ceilings.
 - Such fixtures will shine light on the upper interior surface of a room and trap pathogens.
 - Installing a fan in such spaces can further draw the air upward, which will increase the speed with which the UVGI can destroy pathogens.
- UVGI lamps can also be installed in **room corners**, in **air ducts of ventilation systems** or portable or fixed **air cleaners**.
- UVGI fixtures are and should be installed above people's heads because their **short wavelengths can irritate the skin and eyes**.
- **Effectiveness:**
 - According to research papers, UVGI is **most effective in preventing infections** which are mainly spread through **smaller droplets** and **not by direct contact or larger respiratory droplets**.
 - The **efficacy** of UVGI depends on several factors, such as:
 - Sensitivity of microorganisms to UVGI.
 - Dose/ intensity of UVGI required to kill pathogens.
 - Humidity and weather conditions.
 - Air circulation in a room.
 - It should be such that the air from below the room, where the pathogen is generated reaches the upper-portions of the room, where the UVGI can trap and kill the pathogen.
 - However, using **UVGI on a mass-scale** in public spaces like schools, universities, restaurants and cinema halls is **not a very cost-effective way** for disease prevention.

Note:



- **DRDO's Latest UV Developments:** The **Defence Research and Development Organisation (DRDO)** has recently developed **automated contactless UV-C devices** namely DRUVS (Defence Research Ultraviolet Sanitiser) and NOTESCLEAN.

Other Measures

- Apart from using modern technology to combat viruses, it has been suggested to bring **behavioural changes** like **social distancing** and **wearing masks**.
- Few countries have considered issuing **immunity passports** or **risk-free certificates**.
 - Such certificates are based on the idea that the **natural immunity** a person develops to any infection will protect them from contracting the disease again.
 - **Once infected** with a viral pathogen, the **body's innate immune response** kicks in and **slows the spread** of the virus.
 - This response is **followed by an adaptive response**, wherein the **body makes antibodies**, which bind to the virus and **help eliminate it**.
 - If this response is strong enough, it might prevent reinfection from the same pathogen.
 - However, the **World Health Organisation (WHO)** has warned against using immunity passports because there is, yet, no proof of immunity from the reinfection of **Covid-19**.
 - Even if there is an immunity, its **duration is not known**

Automated UV Systems

Why in News

Recently, the **Research Centre Imarat (RCI)**, has developed an automated contactless UVC (short-wavelength ultraviolet light with wavelengths between 200-280 nanometers) sanitisation cabinet, called **Defence Research UltraViolet Sanitiser (DRUVS)** and an automated UVC currency sanitising device, called **NOTESCLEAN**.

- RCI is a Hyderabad based **Defence Research and Development Organisation (DRDO)** premier lab.



- Earlier, DRDO had developed **UV Blaster** (ultraviolet disinfection tower) for rapid and chemical free disinfection of high infection prone areas.

Defence Research Ultraviolet Sanitiser

- It has been designed to sanitise mobile phones, iPads, laptops, currency notes, cheque leaves, challans, passbooks, paper, envelopes, etc.
- The DRUVS cabinet has a contactless operation which becomes crucial to contain the spread of **Covid-19** and other viruses.
- It has proximity sensor switches, clubbed with drawer opening and closing mechanism which makes its operation automatic and contactless.
- It provides 360 degree exposure of UVC to the objects placed inside the cabinet and it automatically goes into sleep mode after the sanitation process.

NOTESCLEAN

- The device picks the note inserted from the input slot and makes them pass through a series of UVC lamps for complete disinfection.
- It will save a lot of time because disinfection of each currency note by DRUVS or any other sanitising process is a time consuming process.



Defence Research and Development Organisation

- It works under the administrative control of the Ministry of Defence.
- Objective: To establish a world class science and technology base for India and provide Indian Defence Services decisive edge by equipping them with internationally competitive systems and solutions.
- It was established in 1958 after combining Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development & Production (DTDP) with the Defence Science Organisation (DSO).

BiPAP Ventilator "SwasthVayu"

Why in News

Recently, the **National Aerospace Laboratories (NAL)**, **Bangalore** has developed **BiPAP ventilator** named

Note:

SwasthVayu, a non-invasive (involves use of masks or similar device) breathing support device, for the use of non-critical non-ICU cases of **Covid-19**.

- BiPAP stands for **Bilevel Positive Airway Pressure**. It is a type of positive pressure ventilator.
- While using BiPAP, positive air pressure is received during breathing in and breathing out. But higher air pressure is received during breathing in.

Key Points

- SwasthVayu is connected with an oxygen concentrator, and will be ideal to treat moderate or mid-stage severe Covid-19 patients who do not require intubation and invasive ventilation.
- The ventilator is ideal for treating Covid-19 patients in wards, makeshift hospitals, dispensaries and homes in the current Indian Covid-19 scenario.
- The major advantage of this machine is that it is simple to use without any specialized nursing, cost effective, compact and configured with majority of indigenous components.
- The system has been certified for safety and performance by the **National Accreditation Board for Testing and Calibration Laboratories (NABL)**.

National Aerospace Laboratories

- National Aerospace Laboratories (NAL) is a constituent of the **Council of Scientific and Industrial Research (CSIR)**, India, established in 1959.
- It is the only government aerospace Research & Development laboratory in the country's civilian sector.

Use of TB Drugs on Crops

Why in News

Recently, the Registration Committee (RC) under the **Central Insecticides Board and Registration Committee (CIBRC)** has recommended to ban the use of **antibiotics streptomycin and tetracycline**.

Key Points

- The RC recommended to **ban antibiotics streptomycin and tetracycline with immediate effect** on crops where **other options are available** for bacterial disease control.

- Where **no alternatives** are available, use of these antibiotics should be **phased out by 2022-end**. Till then, the antibiotics could be used on crops strictly as per the label claim i.e. streptomycin sulphate (9%) and tetracycline hydrochloride (1%).
- The RC acknowledged that diseases in crops can be managed by using **integrated pest management** and other practices.
- Issues Involved:
 - **Rampant Misuse:** Although streptocycline use is allowed for eight crops by the CIBRC, it was found to be used on many more crops in practice.
 - **Antibiotic Resistance:** Exposure to antibiotics can lead to development of **antibiotic resistance** in humans and animals.
 - **Benefits of Streptomycin:**
 - It has important use for previously treated **tuberculosis (TB)** patients.
 - It is also used in multidrug-resistant TB patients and in certain cases of TB meningitis (brain TB).
 - The **World Health Organization (WHO)** recognises streptomycin as a critically important medicine for human use.

Integrated Pest Management

- It is an **ecosystem-based strategy** that focuses on **long-term prevention of pests or their damage** through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties.
- Pesticides are used only after monitoring and according to established guidelines. **Treatments are made with the goal of removing only the target organism.**
- Pest control materials are selected and applied in a manner **that minimizes risks to human health, beneficial and nontarget organisms, and the environment.**

Central Insecticides Board & Registration Committee

- The Central Insecticides Board & Registration Committee (CIBRC) was set up by the **Ministry of Agriculture and Farmers Welfare** in the year 1970 to regulate the import, manufacture, sale, transport, distribution and use of **insecticides**.
- The insecticides are regulated under **Insecticides Act, 1968** and **Insecticides Rules, 1971**.

Note:



- The **Central Insecticides Board (CIB)** advises the Central Government and State Governments on technical matters arising out of the administration of Insecticides Act and to carry out the other functions assigned to the Board by or under Insecticides rules.
- To **import or manufacture** any insecticide, registration is required at the **Registration Committee**.

Aarogya Setu Data Access and Knowledge Sharing Protocol

Why in News

Recently, the **Ministry of Electronics and Information Technology (MeitY)** has issued '**Aarogya Setu Data Access and Knowledge Sharing Protocol, 2020**' laying down guidelines for sharing such data with government agencies and third parties amid **Covid-19 pandemic**.

- The executive order issued came amid **concerns and privacy issues expressed by a number of experts** over the efficacy and safety of the app.

Aarogya Setu App

- It has been launched by the Ministry of Electronics and Information Technology.
- It will help people in identifying the risk of getting affected by the Coronavirus.
- It will also help to calculate risk based on the user's interaction with others, using cutting edge Bluetooth technology, algorithms and **artificial intelligence**.
 - Once installed in a smartphone, the app detects other nearby devices with Aarogya Setu installed.
- The app will help the Government take necessary timely steps for assessing risk of spread of Covid-19 infection and ensuring isolation where required.

Key Points

- **Description:**
 - The issued Protocol intends to ensure that data collected from the app is gathered, processed and shared in an **appropriate way**.
 - The **violation of the protocol** will lead to the penalties under the **Disaster Management Act, 2005**.
 - **MeitY** is designated as the agency **responsible for the implementation** of this Protocol. Further, the

app's developer, **National Informatics Centre (NIC)** shall be responsible for collection, processing and managing response data collected by the Aarogya Setu app under this Protocol.

- Further, it also calls for the **Empowered Group on Technology and Data Management** to review the protocol after six months; unless extended. It will be in **force only for six months** from the date of its issue.
 - **Empowered Group of Ministers (EGoM)** is a Group of Ministers (GoM) of the Union Government appointed by the Cabinet or the Prime Minister for investigating and reporting on such matters as may be specified.
 - These EGoMs are also authorised to take decisions in such matters after investigation.
- **Definition of Individual:**
 - The order states that the data pertaining to individuals is urgently required in order to formulate appropriate health responses for addressing the Covid-19 pandemic.
 - The Protocol clarifies that individuals means persons who are infected or are at high risk of being infected or who have come in contact with infected individuals.
- **Categorisation of Data:**
 - The data collected by the Aarogya Setu app is broadly divided into **four categories** —
 - **Demographic Data:** It includes information such as name, mobile number, age, gender, profession and travel history.
 - **Contact Data:** It is about any other individual that a given individual has come in close proximity with, including the duration of the contact, the proximate distance between the individuals and the geographical location at which the contact occurred.
 - **Self-assessment Data:** It includes the responses provided by that individual to the self-assessment test administered within the app.
 - **Location data:** It comprises the geographical position of an individual in latitude and longitude.
 - The demographic data, contact data, self-assessment data and location data are collectively called as **response data**.
- **Ground for Data Sharing:**

Note:

- The data can be shared only if it is strictly necessary to directly formulate or implement an **appropriate health response**.
- It can also be shared for **appropriate research work**.
- **Allowed Entities to Access Data:**
 - The **response data containing personal data** may be shared by the app's developer with the Health Ministry, Health Departments of State/Union Territory governments/local governments, National and State Disaster Management Authorities, other ministries and departments of the central and state governments, and other public health institutions of the central, state and local governments.
 - It can also be shared further with any **third parties** that include the Indian universities or research institutions and research entities registered in India.
 - Further, the Protocol also empowers above mentioned universities and research entities to share the data with other such institutions.
- **Checks and Balances:**
 - **De-identified Form:** Except for demographic data, the response data must be stripped of information that may make it possible to identify the individual personally. **De-identification is the process used to prevent someone's personal identity from being revealed.**
- Stripped information must be **assigned a randomly generated ID**.
- The Protocol also discourages reversal of de-identification and imposes penalties under applicable laws for the time being in force.
- **Maintenance of the List:** The NIC needs to maintain a list of, the agencies with the time at which data sharing was initiated, the categories of such data and the purpose of sharing the data.
- **Data Retention:** Any entity with which the data has been shared shall not retain the data **beyond 180 days** from the day it was collected.
- **Concerns:**
 - There is a **need for a Personal data protection law** to back the government's decision to make the app mandatory for everyone.
 - The [Personal Data Protection Bill 2019](#) is in the process of being approved by Parliament.
 - The **clause for data sharing with third parties is open ended** and has a highest possibility of being misused. The stated list of the third parties with which the data can be shared would have been helpful.
 - Further, the **process of de-identifying the data should have been detailed**, given that reversing de-identification was not difficult.



Note:



drishti

Environment and Ecology

Highlights

- *Locusts Appeared Early in Rajasthan*
- *Tiger Population in Sunderbans Rises*
- *Black Panther in Netravali Sanctuary*
- *Sariska Tiger Reserve*
- *Olive Ridley Turtles*
- *A Study on Sal Forest Tortoise*
- *Energy Needs in the Context of Climate Crisis*
- *Energy Transition Index: WEF*
- *Deforestation Rate Declined*
- *River Nila*

Locusts Appeared Early in Rajasthan

Why in News

Recently, scientists at the **Locust Warning Organisation (LWO)** observed groups of **desert locusts** at Sri Ganganagar and Jaisalmer districts of Rajasthan.

- This has raised the alarm-bell for the authorities as they caused huge damage to the growing rabi crops along western Rajasthan and parts of northern Gujarat during December, 2019-January, 2020.
- The **desert locust** (*Schistocerca gregaria*) is a short-horned grasshopper. These winged insects differ from normal hoppers.
- The **genesis of present desert locust upsurge** lies in the Mekunu and Luban cyclonic storms that struck Oman and Yemen, respectively in 2018.
 - These storms turned large desert areas in remote parts of the southern Arabian Peninsula into lakes, which allowed the insects to breed undetected across multiple generations.

Locust

- A locust is a large, **mainly tropical grasshopper** with strong powers of flight. They **differ from ordinary grasshoppers** in their ability to change behaviour (gregarize) and form swarms that can migrate over large distances.
 - Gregarization means transformation of solitary insects etc. into a swarm due to rapid growth in population.

- Locusts are generally seen during the **months of June and July** as the insects are active from summer to the rainy season.
- **Locusts have a high capacity to multiply, form groups, migrate over** relatively large distances (they can fly up to 150 km per day) and, if good rains fall and ecological conditions become favourable, rapidly reproduce and increase some 20-fold in three months.
- **Threat to Vegetation:** Locust adults can eat their own weight every day, i.e. about two grams of fresh vegetation per day. A very **small swarm eats as much in one day as about 35,000 people**, posing a devastating threat to crops and food security.
- **If infestations are not detected and controlled, devastating plagues can develop** that often take several years and hundreds of millions of dollars to bring under control with severe consequences on food security and livelihoods.
- **Locust Control measures** include destroying egg masses laid by invading swarms, digging trenches to trap nymphs, using hopperdozers (wheeled screens that cause locusts to fall into troughs containing water and kerosene), using insecticidal baits, and applying insecticides to both swarms and breeding grounds from aircraft.
 - Organophosphate insecticides such as **Malathion** are effective against locusts.
- The **Food and Agriculture Organisation (FAO)** provides information on the general locust situation to the global community and gives **timely warnings and forecasts** to those countries in danger of invasion.
 - The FAO raised alarm over the locust outbreak in northeast Africa and Saudi Arabia in February, 2019.

Note:

Locusts in India

- **Four species** viz. Desert locust (*Schistocerca gregaria*), Migratory locust (*Locusta migratoria*), Bombay Locust (*Nomadacris succincta*) and Tree locust (*Anacridium sp.*) are found in India.
- The existing series of locust swarms that have entered India via Pakistan had originated in Iran. Movement of locusts is facilitated by summer dusty winds, which flow from the Arabian Sea, taking along these creatures from Sindh in Pakistan to western Rajasthan.
- The **last major locust outbreak that was reported in Rajasthan was in 1993.**
- **Locust Warning Organisation (LWO), Ministry of Agriculture and Farmers Welfare**, is responsible for monitoring, survey and control of Desert Locust in Scheduled Desert Areas mainly in the States of Rajasthan and Gujarat.

Tiger Population in Sunderbans Rises

Why in News

As per the latest census conducted by the **West Bengal Forest Department**, the **tiger count** has increased to **96 from 88 in Sunderbans.**

- It is the highest annual jump reported from the Sunderbans.

Sundarbans

- Sundarbans is a vast contiguous **mangrove forest ecosystem** in the coastal region of Bay of Bengal spread over India and Bangladesh on the delta of the Ganges, Brahmaputra and Meghna rivers.
- The Sunderbans Delta is the **only mangrove forest in the world inhabited by tigers.**
- Indian Sundarbans constitute over 60% of the country's total mangrove forest area.
- Indian Sundarbans has been recognised as **UNESCO World Heritage Site in 1987** and '**Wetland of International Importance**' under the **Ramsar Convention** in January, **2019.**
- It is home to rare and globally threatened species, such as the Northern River Terrapin, Royal Bengal Tiger, Irrawaddy Dolphin, and the Fishing Cat.

- Estimation of the number of tigers in the Sunderbans has always been a challenge because of the difficult terrain that comprises dense mangrove forests, with creeks and rivulets, and floods twice a day during the high tides.

Black Panther in Netravali Sanctuary

Why in News

A **black panther** was spotted in **Goa's Netravali Sanctuary.**

- While the area is a known habitat of tigers, this is for the first time a black panther has been captured on camera in the sanctuary.

Black Panther

- A black panther is the **melanistic colour variant of any Panthera**, particularly of the **leopard in Asia and Africa**, and the **jaguar in the Americas.**



- Melanism is the **increased development of the dark-colored pigment melanin** in the skin or hair.
- It is as shy as a normal leopard and very difficult to detect. It is mostly found in densely forested areas of southern India.
- **Areas where black panther has been spotted earlier:**
 - Periyar Tiger Reserve (Kerala)
 - Bhadra Tiger Reserve, Dandeli-Anshi Tiger Reserve and Kabini Wildlife Sanctuary (Karnataka)
 - Achanakmar Tiger Reserve (Chhattisgarh)
 - Mhadei Wildlife Sanctuary (Goa)
 - Mudumalai Tiger Reserve (Tamil Nadu)

Netravali Wildlife Sanctuary

- Netravali Wildlife Sanctuary is located in **South Eastern Goa** and constitutes one of the vital corridors of the Western Ghats.
- It is bounded by **Cotigao wildlife sanctuary** on the eastern side and **Bhagwan Mahaveer Sanctuary and Mollem National Park** on the northern side.

Note:



- **Netravali or Neturli** is an important tributary of **River Zuari**, which originates in the sanctuary.
- It has two important waterfalls namely, **Savari** and **Mainapi**.
- Forests mostly consist of **moist deciduous vegetation** interspersed with evergreen and semi-evergreen habitat.
- **Fauna:** Leopard, Giant Squirrel, Mouse Deer, Nilgiri Wood Pigeon and Ceylon Frogmouth.
- **Other Protected Areas in Goa:**
 - Cotigao Wildlife Sanctuary
 - Mhadei Wildlife Sanctuary
 - Bhagwan Mahaveer Sanctuary
 - Bondla Wildlife Sanctuary
 - Mollem National Park
 - Dr Salim Ali Bird Sanctuary

Sariska Tiger Reserve

Why in News

The 13th session of the Ministry of Tourism's **Dekho Apna Desh** webinar titled, '**Destination- Sariska Tiger reserve**' was held recently.

- The objective of the Ministry of Tourism's webinar series is to create awareness about and promote various tourism destinations of India, including the lesser known destinations and lesser known facets of popular destinations.

Key Points

- Sariska Tiger Reserve is located in Aravali hills and forms a part of the Alwar District of **Rajasthan**.
- The Reserve is immensely rich in flora and fauna and is famous for Royal Bengal Tiger.
 - The park has populations of leopards, Nilgai, Sambar, chital etc. It also shelters a large population of Indian peafowl, crested serpent eagles, sand grouse, golden backed woodpeckers, great Indian horned owls, tree pies, vultures, etc.
- Sariska was declared a wildlife sanctuary in 1955 and was declared the **tiger reserve later in 1978**, making it a part of India's **Project Tiger**.
- The Sanctuary houses ruined temples, forts, pavilions and a palace.

- **Kankarwadi fort** is located in the center of the Reserve and it is said that Mughal emperor Aurangzeb had imprisoned his brother Dara Shikoh at this fort in struggle for succession to the throne.
- The Reserve also houses a famous **temple of lord Hanuman at Pandupole** related to **Pandavas**.

Project Tiger

- Project Tiger is an ongoing **Centrally Sponsored Scheme** of the Ministry of Environment, Forests and Climate Change providing central assistance to the tiger States for tiger conservation in designated tiger reserves.
- The **National Tiger Conservation Authority (NTCA)** is a statutory body of the Ministry, with an overarching supervisory/coordination role, performing functions as provided in the Wildlife (Protection) Act, 1972.
 - The NTCA was launched in 2005, following the recommendations of the Tiger Task Force. It was given statutory status by the 2006 amendment of Wildlife (Protection) Act, 1972.
- India now has as many as 2,967 tigers in the wild, with **more than half of them in Madhya Pradesh and Karnataka**, according to the latest tiger estimation report for 2018.
- The population of tigers have **increased by 33%** since the last census in 2014 when the total estimate was 2,226.
- **Sariska is the first tiger reserve** to have successfully **relocated Royal Bengal tigers in India** and at present there are around 20 tigers in the reserve.

Dekho Apna Desh

- Dekho Apna Desh is one of the three components of the Paryatan Parv. The other two are Tourism for All and Tourism and Governance.
- It intends to encourage Indians to travel their own country.

Olive Ridley Turtles

Why in News

- Mass hatching of **Olive Ridley turtles** has begun at **Odisha's Rushikulya rookery** (near Ganjam district).
- The **coast of Odisha in India is the largest mass nesting site** for the Olive-ridley, followed by the **coasts of Mexico and Costa Rica**.

Note:

Key Points

➤ Features:

- The Olive ridley turtles are the **smallest and most abundant** of all sea turtles found in the world.



- These turtles are **carnivores** and get their name from their olive colored carapace.

➤ Habitat: They are found in **warm waters** of the **Pacific, Atlantic and Indian oceans.**

➤ Migration: They migrate thousands of kilometers between feeding and mating grounds in the course of a year.

➤ Arribada (Mass Nesting): They are best known for their unique mass nesting called Arribada, where thousands of females come together on the same beach to lay eggs.

- They lay their eggs over a period of five to seven days in conical nests about one and a half feet deep which they dig with their hind flippers.

➤ Threats:

- They are extensively poached for their meat, shell and leather, and their eggs.
- However, the most severe threat they face is the accidental killing through entanglement in trawl nets and gill nets due to uncontrolled fishing during their mating season around nesting beaches.

➤ Protection Status:

- **IUCN Red List: Vulnerable**
- CITES: Appendix I
- Indian Wildlife (Protection) Act, 1972: Schedule I

➤ Step Taken for Conservation: To reduce accidental killing in India, the Odisha government has made it mandatory for trawls to use **Turtle Excluder Devices (TEDs)**, a net specially designed with an exit cover which allows the turtles to escape while retaining the catch.

A Study on Sal Forest Tortoise

Why in News

A recent study by ecologists in the **Wildlife Institute**

of India (Dehradun), finds that over **90% of the potential distribution of the Sal forest tortoise falls outside the current protected area's network.**

Key Points

- The study covers parts of India with Bangladesh, Bhutan and Nepal.
- The study found that in northeast India, the representation of the sal forest tortoise in protected areas (such as reserves, sanctuaries, etc.) is least.
- The study also found that **29% of the predicted distribution of the species falls within high occurrence fire zones.**
 - The species experience **jhum fire** in northeast India, which is a suitable habitat for the species.
 - Such an intervention may not only directly kill the animals but result in loss of habitat.
- According to the IUCN, the **population** of the species may have **fallen by about 80% in the last three generations (90 years).**

Sal Forest Tortoise

- Sal Forest Tortoise is also known as the **elongated tortoise (Indotestudo elongata).**



- **Habitat:** It is widely distributed over eastern as well as northern India and Southeast Asia.
- **IUCN Red List:** Critically Endangered.
- **CITES:** Appendix II
- **Wildlife (Protection) Act of 1972:** Schedule IV
- **Threat:** Hunted for food, local use such as decorative masks and international wildlife trade.

Wildlife Institute of India

- Wildlife Institute of India (WII) is an autonomous institution under the **Ministry of Environment, Forest and Climate Change.**
- It was established in 1982.
- It is based in Dehradun, Uttarakhand.
- It offers training programs, academic courses, and advisory in wildlife research and management.

Note:

Energy Needs in the Context of Climate Crisis

Why in News

Recently, on the occasion of the **National Technology Day, Padma Vibhushan** Dr. Anil Kakodkar conveyed a message to the people of India about '**Dealing with energy needs in the Context of Climate Crisis**'.

- National technology day marks the **anniversary of the Pokhran Nuclear Tests of 1998** that strengthened Indian national security.
 - India successfully test-fired its Shakti-1 nuclear missile in operation called Pokhran-II, also codenamed as **Operation Shakti**.
- After the tests, India has entered into many **international agreements to promote nuclear commerce for peaceful purposes and to secure energy security** through nuclear energy.
 - **Nuclear commerce** in general refers to a worldwide trade centered on nuclear energy.

Key Points

- **HDI and Energy Consumption:**
 - Dr. Kakodkar highlighted the correlation between **Human Development Index (HDI)** and **Per Capita Energy Consumption** all over the world.
 - As per the statistics, countries with higher HDI have higher per capita consumption of energy.
 - HDI emphasizes that **people and their capabilities should be the ultimate criteria for assessing the development** of a country, not economic growth alone.
- **Energy and Climate Security:**
 - However, **developing countries** like India, on the other hand, face the **challenge of choosing between energy security and climate security**. It is important to strike a balance between enhancing the quality of human life as well as keeping a control over the climate crisis.
- **Emission Targets:**
 - Various studies have been conducted on how to control **carbon dioxide (CO₂)** emissions, which is a **serious threat** to the environment.
 - As per the report of the **Intergovernmental Panel on Climate Change (IPCC)**, "staying below **1.5 degree**

increase in 2100 will require cuts in **Greenhouse Gases (GHGs)** emissions of 45% below 2010 levels by 2030 and to net zero by 2050".

- **Decarbonisation:**
 - **Zero emission targets** can be easily met by the use of **nuclear energy**. It can also **reduce the cost of deep decarbonisation**.
 - Decarbonising means **reducing carbon intensity**, i.e. reducing the emissions per unit of electricity generated (often given in grams of carbon dioxide per kilowatt-hour).
 - Decarbonisation is **essential** since the demand for electric power from industries/commercial sectors is high.
 - It is possible by **increasing the share of low-carbon energy sources**, particularly **renewables** like **solar, hydro** and biomass (**Biofuels**) together with nuclear which can greatly contribute in achieving zero emissions.
- **Comparison:**
 - **Japan** saw the **negative effects of nuclear energy** (bombing at Hiroshima and Nagasaki) yet it has drafted an energy plan, to **generate 20% to 22%** of their total energy consumption as **nuclear energy** and to reduce CO₂ emissions by 2030.
 - **Germany** had also planned to **cut GHG emissions by 2020** which has allotted huge amounts of production of renewable energy.
 - **India**, in order to decarbonise the energy consumption, needs a **30-fold increase in renewable energy, 30-fold increase in nuclear energy** and **doubling of thermal energy** which would make **70% of energy carbon free**.
- **Actions Required:**
 - **Different levels of consumption strategy** need to be observed by different countries **based on their HDI** so that they can actively contribute towards low/zero emissions. **For example:**
 - Countries with **high HDI**, should reduce their energy consumption since it may not affect their HDI, much. They should also decarbonise their electricity generation.
 - Countries with **moderate HDI** should focus on non-fossil electricity consumption.
 - Countries with **low HDI** should be able to provide subsidised sources of cleaner energy to their citizens.

Note:

➤ Concerns and Solutions:

- **Management of nuclear waste**, that is produced during energy generation, is a major **concern**.
- To **tackle** the problem, India adopts the policy of '**Nuclear Recycle Technology**'.
 - Under it, the **nuclear fuel**- Uranium, Plutonium etc, once used for generation of energy, is **reused as a resource** material by the commercial industries to be recycled.
 - **More than 99% of nuclear waste is reused** as the waste management program in India prioritises recycling.

Energy Transition Index: WEF

Why in News

Recently, the **World Economic Forum** (WEF) has released the **annual rankings of the global Energy Transition Index**.

- The index benchmarks **115 economies** on the current performance of their energy systems across economic development and growth, environmental sustainability and energy security and access indicators and their readiness for transition to secure, sustainable, affordable and inclusive energy systems.

Key Points

➤ Data Analysis:

- **Sweden has topped** the Index for the third consecutive year and is followed by Switzerland and Finland in the top three.
- France (8th) and the UK (7th) are the only **G20** countries in the top ten.
- Only 11 out of 115 countries have made steady improvements in ETI scores since 2015. Argentina, China, India and Italy are among the major countries with consistent annual improvements.
 - In China (78th), problems of air pollution have resulted in policies to control emissions, electrify vehicles and develop the world's largest capacity for **solar photovoltaic** (SPV) and onshore **wind power** plants.

➤ Performance Analysis:

- The results for 2020 show that 75% of countries have improved their **environmental sustainability**.

- It is a result of multifaceted, incremental approaches, including pricing carbon, retiring coal plants ahead of schedule and redesigning electricity markets to integrate renewable energy sources.

- Its study measuring readiness for clean energy transition in 115 economies showed that 94 have made progress since 2015.
- The greatest overall progress is observed among emerging economies.

➤ India's Ranking and Reasons:

- India has moved up two positions to rank 74th with improvements in all three dimensions of the energy triangle namely:
 - Economic development and growth.
 - Energy access and security.
 - Environmental sustainability.
- For India, gains have come from a government-mandated renewable energy expansion programme i.e. to add 275 GW by 2027.
- India has also made significant strides in energy efficiency through bulk procurement of LED bulbs, smart meters and programs for labelling of appliances. Similar measures are being experimented to drive down the costs of **electric vehicles** (EVs).
- It indicates a strong positive trajectory, driven by strong political commitment and an enabling policy environment.

➤ Impact of Covid-19

- **Covid-19** risks cancelling out recent progress in transitioning to clean energy, with unprecedented falls in demand, price volatility and pressure to quickly mitigate socioeconomic costs placing the near-term trajectory of the transition in doubt.

➤ Suggestions

- Policies, roadmaps and governance frameworks for energy transition at national, regional and global levels need to be more robust and resilient against external shocks.
- The pandemic offers an opportunity to consider unorthodox intervention in the energy markets and global collaboration to support a recovery that accelerates the energy transition once the crisis subsides.
- The economic recovery packages (like the announcement of the **Pradhan Mantri Gareeb Kalyan**

Note:



Yojana by India), introduced by the governments can accelerate the transition to clean energy, by helping countries scale their efforts towards sustainable and inclusive energy systems, if implemented with long-term strategies.

World Economic Forum

- It is a Swiss nonprofit foundation established in 1971, based in **Geneva, Switzerland**.
- Recognized by the Swiss authorities as the international institution for public-private cooperation, its mission is cited as, “committed to improving the state of the world by engaging business, political, academic, and other leaders of society to shape global, regional, and industry agendas”.
- Major reports published by WEF:
 - [Global Competitiveness Report](#)
 - [Global IT Report](#)
 - [Global Gender Gap Report](#)
 - [Global Risk Report](#)
 - [Global Travel and Tourism Report](#)

Deforestation Rate Declined

Why in News

According to the **Global Forest Resources Assessment 2020 (FRA 2020) report**, the rate of forest loss has declined in the period of 1990-2020.

- The FRA is released by the **United Nations Food and Agriculture Organization (FAO)**.
- The FRA 2020 is **based on the assessment** of more than **60 forest-related variables in 236 countries** and territories in the period of 1990–2020.

Key Points

- **Total forest area:** The world’s total forest area is 4.06 billion hectares (bha), which is 31% of the total land area. This area is equivalent to 0.52 hectares per person.
- **Top countries in forest cover** — the **Russian Federation, Brazil, Canada, the United States of America and China** constituted more than 54% of the world’s forests.
- **Forest loss:** According to the report, the **world has lost 178 million hectares (mha) of forest since 1990**, an area the size of Libya.

- **Decline in rate of forest loss:** The rate of net forest loss decreased substantially during the period of 1990–2020.
 - It was 7.8 mha per year in the decade 1990–2000, 5.2 mha per year in 2000–2010 and 4.7 mha per year in 2010–2020.
 - This is due to a **reduction in deforestation in some countries**, plus **increases in forest area in others** through afforestation and the **natural expansion of forests**.
- **Areas that witnessed forest loss:** **Africa** had the **largest annual rate of net forest loss** in 2010–2020, at 3.9 mha, **followed by South America**, at 2.6 mha.
- **Areas that witnessed forest gain:** **Asia** had the **highest net gain of forest area** in 2010–2020, **followed by Oceania and Europe**.
 - However, Oceania experienced net losses of forest area in the decades 1990–2000 and 2000–2010.
- **Types of forest loss:** The largest proportion of the world’s forests are **tropical** (45%), followed by **boreal, temperate and subtropical**.
 - **Naturally regenerating forest areas** worldwide **decreased** since 1990, but the area of **planted forests** has increased.
- **Plantation forest** cover is 131 mha, about 3% of the global forest area.
 - The **highest percent** of plantation forests are in **South America** while the **lowest are in Europe**.
- **Protected forest areas** worldwide estimate around 726 mha.
 - **South America** has the highest share of forests in protected areas, at 31%.
 - The protected forest areas increased by 191 mha since 1990.

Global Forest Resources Assessment

- The FRA presents a comprehensive view of the world’s forests and the ways in which the resource is changing.
- It supports the development of sound policies, practices and investments affecting forests and forestry.

Food and Agriculture Organization (FAO)

- The Food and Agriculture Organization is an **agency of the United Nations** that leads international efforts to defeat hunger.

Note:

- FAO is also a source of knowledge and information and helps developing countries and countries in transition to modernize and **improve agriculture, forestry and fisheries practices and ensure good nutrition and food security** for all.
- **Formation:** 16th October 1945
- **Headquarters:** Rome, Italy

River Nila

Why in News

Recently, the **Ministry of Tourism** organised a **webinar- 'Exploring River Nila'** as a part of the **Dekho Apna Desh Webinar series**.

Key Points

- River Nila is also known as **Bharathapuzha and Ponnani**.
- **Origin:** **Amaravathipuzha** originating from **Thrimoorthy Hills of Anamalais** in Tamil Nadu **joins** with Kalpathipuzha at **Parali** in Palakkad District and forms Nila.
- **Drainage Area:** Kerala and Tamil Nadu.
 - It flows westward through Palakkad Gap (most prominent discontinuity in the western ghats) and drains into the Arabian Sea.
- **Main Tributaries:** Kannadipuzha (Chitturpuzha), Kalpathipuzha (Korapuzha), Gayathripuzha and Thuthapuzha
- **Malampuzha dam** is the **largest** among the reservoirs built across Bharathapuzha.



Note:



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History

Highlights

- Rabindranath Tagore
- Gandhi Peace Prize
- 480th Birth Anniversary of Maharana Pratap
- Gopal Krishna Gokhale

Rabindranath Tagore

Why in News

The Prime Minister of India paid tributes to **Rabindranath Tagore** on his **159th Jayanti** on **7th May, 2020**.

Key Points

- Rabindranath Tagore was born in Calcutta on May 7, 1861. He was also referred to as '**Gurudev**', '**Kabiguru**', and '**Biswakabi**'.
- Regarded as the outstanding creative artist of modern India and hailed by **W.B Yeats**, Rabindranath Tagore was a Bengali poet, novelist, and painter, who was highly influential in introducing Indian culture to the west.
- Rabindranath was an exceptional literary figure and a renowned polymath who singlehandedly reshaped the region's literature and music.
- In **1913** Rabindranath Tagore was awarded the **Nobel Prize in Literature** for his work on **Gitanjali**.
 - He was the **first non-European to receive the Nobel Prize**.
- In **1915** Tagore was awarded **knighthood by the British King George V**. In 1919, following the **Jallianwalla Bagh massacre** he renounced his Knighthood.
- Besides all his literary achievements he was also a philosopher and educationist who in 1921 established the **Vishwa-Bharati University**, a university that challenged conventional education.
- Rabindranath Tagore was a good friend of Mahatma Gandhi and is said to have given him the title of Mahatma.
- Tagore had always stressed that unity in diversity is the only possible way for India's national integration.
- He not only gave the **national anthems for two countries, India and Bangladesh**, but also inspired

a Ceylonese student of his, to pen and compose the national anthem of Sri Lanka.

Gandhi Peace Prize

Why in News

Recently, the **Ministry of Culture** extended the **nomination period for the Gandhi Peace Prize** from 30th April to 15th June 2020, due to the **lockdown** in the wake of the **Covid-19**.

Key Points

- The **annual award** was instituted by the Government of India in **1995** during the commemoration of the **125th Birth anniversary of Mahatma Gandhi** for those involved in **social, economic and political transformation** through **non-violence**.
- The award carries an amount of **Rs.1 crore**, a **Citation in a scroll**, a **plaque** as well as an **exquisite traditional handicraft/handloom item**.
- The prize can be given to individuals, associations, institutions or organizations.
 - It can be **divided between two persons/institutions** who are considered by the Jury to be equally deserving of recognition in a given year
 - It is **open to all persons** regardless of nationality, creed, race or sex.
- The prize is **not awarded posthumously**.
- In **January 2019**, Gandhi Peace Prize was **awarded for the years 2015, 2016, 2017 and 2018**.

Mahatma Gandhi

- **Mohandas Karamchand Gandhi** was born on **2nd October, 1869**, at **Porbandar in Gujarat** and died on **30th January, 1948**, at **Gandhi Smriti, New Delhi**.

Note:

- He was **assassinated by Nathuram Godse** in the Birla House during his evening prayers.
- He was a **lawyer, politician, social activist, writer** and became the **leader of the nationalist movement** against the British rule of India.
- He is considered the **Father of the Nation**.
- **Rabindranath Tagore** is said to have given him the title of **Mahatma**.
- **Gandhi and his ideologies** played an important role in liberating India from the British.
- **Gandhi's Works:**
 - **Journals:** Young India, Navajivan, Harijan, Harijan Bandhu, Indian Opinion I and II, etc.
 - **Books:** Hind Swaraj, Satyagraha in South Africa, The Story of My Experiments with Truth (**autobiography**), etc.
 - **Foundations:** Natal Indian Congress (South Africa, 1894), Phoenix Settlement (South Africa, 1904), Satyagraha Ashram (Ahmedabad, 1915), Harijan Sevak Sangh (1932), Sevagram Ashram (Wardha, 1936), etc.

480th Birth Anniversary of Maharana Pratap

Why in News

Recently, the Prime Minister and Vice President of India paid tributes to **Maharana Pratap** on his **480th birth anniversary**.

Maharana Pratap

- **Description:**
 - Rana Pratap Singh also known as Maharana Pratap was born on May 9th 1540 in Kumbhalgarh, Rajasthan.
 - He was the **13th King of Mewar** and was the **eldest son of Udai Singh II**
 - Maharana Udai Singh II ruled the **kingdom of Mewar**, with his **capital at Chittor**.
 - Udai Singh II was also a **founder of the city of Udaipur** (Rajasthan).
- **Battle of Haldighati:**
 - The **Battle of Haldighati** was fought in **1576** between **Rana Pratap Singh of Mewar and Raja**

Man Singh of Amber who was the **general of the Mughal emperor Akbar**.

- Maharana Pratap fought a brave war, but was **defeated by Mughal forces**.
- It is said that Maharana Pratap's loyal horse named **Chetak**, gave up his life as the Maharana was leaving the battlefield.
- **Reconquest:**
 - After 1579, the Mughal pressure relaxed over Mewar and Pratap recovered Western Mewar including Kumbhalgarh, Udaipur and Gogunda.
 - During this period, he also built a **new capital, Chavand, near modern Dungarpur**.

Gopal Krishna Gokhale

Why in News

The Prime Minister paid tribute to **Gopal Krishna Gokhale** on his 154th birth anniversary.

- Gopal Krishna Gokhale was a **great social reformer** and **educationist** who provided exemplary leadership to India's freedom movement.

Key Points

- **Birth:** Gopal Krishna Gokhale was born on **9th May 1866** in **Kotluk** village in present-day **Maharashtra** (then part of the **Bombay Presidency**) in a Brahmin family.
- **Ideology:**
 - Gokhale worked towards social empowerment, expansion of education, struggle for freedom in India for three decades and rejected the use of reactionary or revolutionary ways.
- **Role in Colonial Legislatures:**
 - Between 1899 and 1902, he was a member of the Bombay Legislative Council followed by work at the Imperial Legislative Council from 1902 till his death (1915).
 - At the Imperial legislature, Gokhale played a key role in framing the **Morley-Minto reforms of 1909**.
- **Role in INC:**
 - He was associated with the **Moderate Group** of **Indian National Congress (INC)** (joined in 1889).



Note:

- He became **president of INC in 1905 in Banaras session**.
 - This was the time when bitter differences had arisen between his group of '**Moderates**' and the '**Extremists**' led by **Lala Lajpat Rai** and **Bal Gangadhar Tilak** among others. The two factions split at the Surat session of 1907.
 - Despite the ideological difference, in 1907, he intensely campaigned for the release of **Lala Lajpat Rai**, who was imprisoned that year by the **British at Mandalay in present-day Myanmar**.
- **Related Societies and Other Works:**
 - He established the **Servants of India Society** in 1905 for the expansion of Indian education.
 - He was also associated with the **Sarvajanik sabha journal** started by Govind Ranade.
 - In 1908, Gokhale founded the **Ranade Institute of Economics**.
 - He started english weekly newspaper, **The Hitavada** (The people's paper).
- **Mentor to Gandhi:**
 - As a liberal nationalist, he is regarded by Mahatma Gandhi as his political guru.
 - Gandhi wrote a book in Gujarati dedicated to the leader titled '**Dharmatma Gokhale**'.



Note:



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Geography

Highlights

- Erosion in Ladakh and Zaskar
- Surge-type Glaciers
- Diamer-Bhasha Dam

Erosion in Ladakh and Zaskar

Why in News

The scientists and students from the **Wadia Institute of Himalayan Geology (WIHG)** have explored the **Zaskar catchment area**.

- The study was conducted to understand the landform evolution in transitional climatic zones, using **morphostratigraphy, Optically Stimulated Luminescence (OSL) dating and provenance analysis** of landforms like **valley fill terraces** and **alluvial fans**.
 - **Valley Fill Terrace:** The **fill terrace** is created either a stream or river starts to incise into the material that it deposited in the valley. Once this occurs benches composed completely of alluvium form on the sides of the valley. The upper most benches are the fill terraces.
 - **Alluvial Fans:** Triangle-shaped deposit of gravel, sand and even smaller pieces of sediment, such as silt.
- WHIG is an **autonomous institute** under the **Department of Science & Technology**, Government of India.

Zaskar River

- It is **one of the largest tributaries** of the **upper Indus catchment**.
- It drains **transversely northward from the Higher Himalaya, dominated by the Indian summer monsoon, to flow through** the arid, westerlies-dominated, highly folded and thrust Zaskar ranges in Ladakh.
- The **Doda** and the **Tsarap Lingti Chu confluence** at Padam to form the Zaskar, which in turn **joins the Indus at Nimu**.

- Zaskar valley can be divided into **upper and lower divisions, separated by a gorge of nearly 60 km in length**.

Morphostratigraphy: The organization of rock or sediment strata into units based on their surface **morphology (landforms)**.

Optically-Stimulated Luminescence: It is a late Quaternary dating technique **used to date the last time a quartz sediment was exposed to light**. As sediment is transported by wind, water or ice, it is exposed to sunlight and zeroed of any previous luminescence signal.

Provenance Analysis: It aims to **determine the source region (provenance) of a sediment sample**. It is aimed to reconstruct the parent rock or rocks of sand bodies, the time of deposition of the sand and, if possible, the climate conditions during the formation of the sediments.

Key Findings

- Scientists traced where the rivers draining Himalaya and its foreland erode the most and identified the zones which receive these eroded sediments and fill up.
- The study suggested that the **wide valley of Padam in the upper Zaskar** is a **hotspot of sediment buffering** and has stored a vast amount of sediments.
 - The sediment contribution from such transient basins is significant when compared to the sediment reportedly eroded from the entire **Indus system in Ladakh**.
- Most of the sediments in the Padam valley were **derived from Higher Himalayan crystalline** that lie in the **headwater region of Zaskar**.
- The dominant **factors responsible** for sediment erosion were **deglaciation** and **Indian Summer Monsoon derived precipitation** in the headwaters.

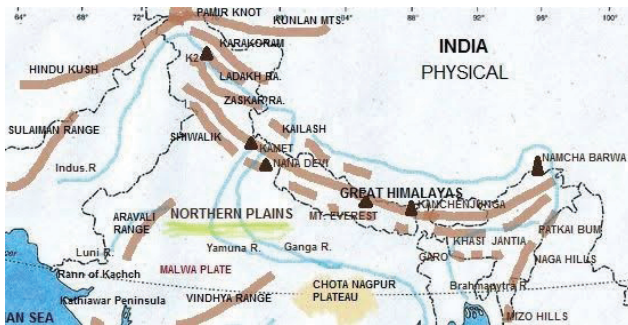
Note:



- The provenance analysis suggested that **despite the presence of the deep narrow gorge and a low gradient**, the upper and lower Zaskar valleys remained **connected throughout their aggradational history**.

Significance

- The study will help to **understand river-borne erosion and sedimentation**, which are the main drivers that make large riverine plains, terraces and deltas that eventually become the evolving grounds for civilizations.
- The study brought forwards the **35 thousand-year history of river erosion and identified hotspots of erosion and wide valleys** that act as buffer zones.
- It showed **how rivers in drier Ladakh Himalaya operated on longer time scales** and how they responded to **varying climates**.
 - The Ladakh Himalaya forms a **high altitude desert between Greater Himalayan ranges and Karakoram Ranges** and the Indus and its tributaries are major rivers flowing through the terrain.
- Understanding of **water and sediment routing becomes crucial** while developing infrastructure and for other development works in the river catchment area.



Surge-type Glaciers

Why in News

Scientists from the Wadia Institute of Himalayan Geology (WIHG), Dehradun have found a **seasonal advancement in 220 surging or surge-type glaciers in the Karakoram Range of Ladakh**.

- WIHG is an autonomous institute under the Department of Science and Technology (DST).

Key Points

- Surging or Surge-type glaciers are a certain type of glaciers that have shown **advancement in volume and length over a period of time**.
 - Such glaciers go against the normal trend of considerable reduction in volume and length of most glaciers in the Himalaya in recent decades.
- Surging glaciers represent **40% of the total glaciated area** of the **Karakoram range**.

Glaciers

- Masses of ice moving as sheets over the land (continental glacier or piedmont glacier if a vast sheet of ice is spread over the plains at the foot of mountains) or as linear flows down the slopes of mountains in broad trough-like valleys (mountain and valley glaciers) are called glaciers.
- The movement of glaciers is slow unlike water flow ranging from a few centimetres to a few meters per day. Glaciers move basically because of the force of gravity.
- Erosion by glaciers is tremendous because of friction caused by sheer weight of the ice.
 - The material plucked from the land by glaciers (usually large-sized angular blocks and fragments) get dragged along the floors or sides of the valleys and cause great damage through abrasion and plucking.
 - Glaciers can cause significant damage to even unweathered rocks and can reduce high mountains into low hills and plains.
- As glaciers continue to move, debris gets removed, divides get lowered and eventually the slope is reduced to such an extent that glaciers stop moving, leaving only a mass of low hills and vast outwash plains along with other depositional features.

Note:

- Surging glaciers **do not flow at a constant speed**, rather are subjected to cyclical flow instabilities.
- The oscillation of such glaciers have been broadly classified into two phases:
 - **Active (Surge) Phase**- brief (months to years) rapid flow.
 - **Quiescent Phase**- lengthy (tens to hundreds of years) slow flow or stagnation.
- It was inferred that surge during winter is more controlled because there is low amount of meltwater which flows unsteadily underneath the glaciers.
- The surging stops in summer because of the channelised flow of the melted water.

Significance of Studying Surging Glaciers

- Surging glaciers can lead to the destruction of villages, roads and bridges.
- They can also advance across a river valley and form an ice-dammed lake. These lakes can form catastrophic outburst floods.
- Therefore, monitoring of glacier surges, ice-dammed lake formation and drainage is of paramount importance.

Diamer-Bhasha Dam

Why in News

Recently, Pakistan signed a contract with a joint venture of a China Power (Chinese state-run firm) and the Frontier Works Organisation (FWO-a commercial arm of Pakistan's military) for the **construction of the Diamer-Bhasha dam**.

- The contract covers construction of a diversion system, main dam, access bridge and the 21MW Tangir hydropower project.

Key Points

- The Diamer-Bhasha Dam is **located on the Indus River** in northern Pakistan between Kohistan district



in Khyber Pakhtunkhwa and Diamer district in Gilgit Baltistan.

- The dam will have a gross storage capacity of 8.1 Million Acre Feet (MAF) and power generation capacity of 4500 MW.
- With the height of 272 meters, it will be the tallest Roller Compact Concrete (RCC) dam in the world.
- The dam project with a total financial outlay of about 1,406.5 billion Pakistani rupees would be completed in 2028.
- **Purpose:**
 - Fulfil the increasing water and electricity requirements of the country.
 - Serve as the main storage dam of the country, besides Mangla and Tarbela dams.
 - Help alleviate acute irrigation shortage in the Indus basin irrigation system.
 - Reduce intensity, quantum and duration of floods and reduce magnitude and frequency of floods in the River Indus downstream.
 - Accelerate development and create job opportunities, besides improving availability of water and clean energy.
- The project was approved in 2010, but it suffered delays because international lending agencies backtracked due to the opposition from India as a major part of the dam is located in Gilgit-Baltistan (one of the **disputed territories** of India) and it will cause unrest in the region.
- **India's Stand:**
 - India has opposed the move on the grounds that Gilgit-Baltistan region is part of the erstwhile state of Jammu and Kashmir that was illegally occupied by Pakistan.
 - India has consistently conveyed her protest and shared concerns with both China and Pakistan on all such projects in the Indian territories under Pakistan's illegal occupation.
 - In the past too, India has opposed projects jointly taken up by Pakistan and China in Pakistan-occupied Kashmir (POK) as part of the **China-Pakistan Economic Corridor**.



Note:



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Art & Culture

Highlights

- GI Tags
- Buddha Purnima
- Construction of Rath Yatra Chariots Allowed

GI Tags

Why in News

Recently, Chak-Hao, the black rice of Manipur, terracotta of the Gorakhpur (Uttar Pradesh) and Kashmir saffron have received the Geographical Indication (GI) tag.

Chak-Hao Rice

- Chak-Hao is a scented glutinous (sticky) rice which has been in cultivation in **Manipur** over centuries, and is characterised by its **special aroma**.
- The rice is **black in colour** and takes the **longest cooking time of 40-45 minutes** due to the presence of a fibrous bran layer and higher crude fibre content.
- It is normally eaten during community feasts and is served as Chak-Hao kheer.
- Chak-Hao has also been used by traditional medical practitioners as part of traditional medicine.



Gorakhpur Terracotta

- The terracotta work of Gorakhpur is a centuries-old traditional art form.
- The entire work is done with bare hands.
- The clay used in the terracotta products is '**Kabis**' clay which is found in the ponds of Aurangabad, Bharwalia and Budhadih village areas.



- Also, such clay is found only in the months of May and June, as for the rest of the year, the ponds are filled with water.
- The potters **do not use any colour**, they only dip the clay structure in a mixture of soda and mango tree barks, and bake it.
 - The red colour of terracotta does not fade for years.
 - Major products of craftsmanship include the Hauda elephants, Mahawatdar horse, deer, camel, five-faced Ganesha, single-faced Ganesha, elephant table, chandeliers, hanging bells etc.

Kashmir Saffron

- Saffron cultivation is believed to have been introduced in Kashmir by Central Asian immigrants around the 1st Century BCE.
 - It has been associated with traditional Kashmiri cuisine and represents the rich cultural heritage of the region.
 - It is a very precious and costly product.
- In ancient Sanskrit literature, saffron is referred to as 'bahukam'.
- It is cultivated and harvested in the Karewa (highlands) of Jammu and Kashmir.
- The features which differentiates it from other saffron varieties available the world over are:
 - It is the only saffron that is grown at an altitude of 1,600 m to 1,800 m above mean sea level.
 - It has longer and thicker stigmas, natural deep-red colour, high aroma, bitter flavour, chemical-free processing.
 - It also has a high quantity of crocin (colouring strength), safranal (flavour) and picrocrocin (bitterness).
- There are three types of saffron available in Kashmir — Lachha Saffron, Mongra Saffron and Guchhi Saffron.

Note:



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➤ Uses:

- Kashmir saffron is used globally as a spice. It also helps in revitalizing health.
- It is used in cosmetics and for medicinal purposes.
- Benefit of tag: With the GI tag, Kashmir saffron would gain more prominence in the export market.
 - Iran is the largest producer of saffron and India is a close competitor.

Sohrai Khovar Paintings

- The Sohrai Khovar painting is a **traditional and ritualistic mural art**.
 - A **mural** is any piece of artwork painted or applied directly on a wall, ceiling or other permanent surfaces.
- It is being practised by local tribal women during local harvest and marriage seasons using **local, naturally available soils of different** colours in the area of **Hazaribagh district of Jharkhand**.
- Style features a **profusion of lines, dots, animal figures and plants**, often representing religious iconography i.e. visual image and symbols.
- It has been **painted on the walls of important public places** in Jharkhand, such as the Birsra Munda Airport in Ranchi.



Telia Rumal

- **Telangana's Telia Rumal** cloth involves intricate handmade work with cotton loom displaying a variety of designs and motifs in three particular colors — red, black and white.
- It is an art of Ikat tradition using **natural vegetable dyes**.
 - **Ikkat** is a dyeing technique used to pattern textiles.
- **Uniqueness:** Telia Rumal can only be **created using the traditional handloom process** and not by any other mechanical means as otherwise, the very quality of the Rumal would be lost.
- The telia fabrics were **used by nobles** (Nizam's dynasty) in **Hyderabad**. The fabric was exported to Persian Gulf, Middle East, Aden, East Africa, Singapore and Burma.



Geographical Indication (GI)

- It is an insignia on products having a unique geographical origin and evolution over centuries with regard to its special quality or reputed attributes.
- It is a mark of authenticity and ensures that registered authorized users or at least those residing inside the geographic territory are allowed to use the popular product names.
- GI tag in India is governed by Geographical Indications of Goods (Registration & Protection) Act, 1999. It is issued by the Geographical Indications Registry (Chennai).
- Benefits of GI Tag:
 - It provides legal protection to Indian Geographical Indications thus preventing unauthorized use of the registered GIs by others.
 - It promotes economic prosperity of producers of goods produced in a geographical territory.
 - The GI protection in India leads to recognition of the product in other countries thus boosting exports.

Buddha Purnima

Why in News

In 2020, Buddha Purnima is being celebrated on 7th May.

Gautam Buddha

- He was **born** as Siddhartha Gautama in circa **563 BCE**, in a royal family in **Lumbini** which is situated near the Indo-Nepal border.
- His family belonged to the **Sakya clan** which ruled from **Kapilvastu, Lumbini**.
- At the age of 29, Gautama left home and rejected his life of riches and embraced a lifestyle of asceticism or extreme self-discipline.
- After 49 consecutive days of meditation, Gautam attained **Bodhi (enlightenment)** under a pipal tree at Bodhgaya, Bihar.
- Buddha gave his **first sermon in the village of Sarnath**, near Varanasi in **Uttar Pradesh**. This event is known as **Dharma Chakra Pravartana (turning of the wheel of law)**.

Note:

- He died at the age of 80 in 483 BCE at Kushinagara, Uttar Pradesh. The event is known as Mahaparinibban or Mahaparinirvana.

Construction of Rath Yatra Chariots Allowed

Why in News

The Ministry of Home Affairs (MHA) has allowed the construction of chariots for the annual Rath Yatra at Jagannath Puri in Odisha.

- It has also said that the complete segregation of the construction site should be ensured and **social-distancing norms be followed**.
- The Rath Yatra is expected to be held on 23rd June 2020.

Key Points

- Ratha Jatra, also called as **Chariot Festival**, is a Hindu festival associated with **Lord Jagannath** held at **Puri, Odisha**.
- The festival is celebrated on the **2nd day of Shukla Paksha of Ashadh**, the third month, according to the traditional Oriya calendar.
- It is a **9 day-long event** and marks the **return of Lord Krishna to Vrindavan** with his brother **Balabhadra** and sister **Subhadra** to **Gundicha Temple** via Mausī Maa Temple (maternal aunt's home) near Saradha Bali, Puri.

- During the festival, the three holy chariots carrying idols of Lord Jagannath, his brother Balaram (Balabhadra) and sister Subhadra are pulled by thousands of devotees from India and abroad.

Jagannath Temple

- The temple is believed to be constructed in the 12th century by **King Anatavarman Chodaganga Deva** of the **Eastern Ganga Dynasty**.



- Jagannath Puri temple is called '**Yamanika Tirtha**' where, according to the Hindu beliefs, the power of 'Yama', the god of death has been nullified in Puri due to the presence of Lord Jagannath.
- This temple was called the "**White Pagoda**" and is a **part of Char Dham** pilgrimages (Badrinath, Dwaraka, Puri, Rameswaram).
- There are four gates to the temple- Eastern 'Singhdwara' which is the main gate with two crouching lions, Southern 'Ashwadwara', Western 'Vyaghra Dwara' and Northern 'Hastidwara'. There is a carving of each form at each gate.
- In front of the entrance stands the Aruna stambha or sun pillar, which was originally at the **Sun Temple in Konark**.



Note:

Social Issues

Highlights

- International Workers' Day
- Opposition to Permanent Bru Settlement in Tripura
- Global Nutrition Report 2020
- Devices for Disabled and Elderly
- Data Related to Birth Rate and Death Rate

International Workers' Day

Why in News

Every year, **1st May** is celebrated as the **International Workers' Day** and as **Labour Day** in different parts of the world to commemorate the contributions of workers and the historic labour movements.

- It is a day when the **International Labour Organisation (ILO)**, nations, employers and workers from all over the world commit themselves towards the collective efforts of **promoting decent work for all**.
- In 1889, the Second International, an organisation created by socialist and labour parties, declared that 1st May would be commemorated as International Workers' Day from then on.
- On 1st May 1904, the International Socialist Congress at Amsterdam, the Netherlands called for the legal establishment of the 8-hour day for the class demands of the proletariat and made it mandatory upon the proletarian organisations of all countries to stop work on this day.

Historical Perspective

- **USA**
 - The USA celebrates Labor day on the **first Monday of September, every year**. The USA recognised the day as a federal holiday in 1894.
 - Canada also celebrates the Labour day on the same day as the US.
 - Labor day was designated as a day in support of workers by trade unions and socialist groups in the memory of the Haymarket affair of 1886 in Chicago, USA. It gave the workers' movement a great impetus.

- Haymarket Affair was a peaceful rally in support of workers which led to a violent clash with the police, leading to severe casualties. Those who died were hailed as "Haymarket Martyrs".
- Workers' rights violations, straining work hours, poor working conditions, low wages and child labour were the issues highlighted in the protest.

➤ USSR

- The Soviet Union and the Eastern bloc nations started celebrating the Labor day after the Russian Revolution, 1917.
 - Impact of Russian Revolution: New ideologies such as Marxism and Socialism inspired many socialist and communist groups and they attracted peasants and workers and made them an integral part of national movement.
- It became a national holiday during the **Cold War**.

➤ India

- In India, Labor day was first celebrated in **1923**, after the **Labour Kisan Party of Hindustan** initiated the celebrations and Comrade Singaravelar (Singaravelu Chettiar) continued the celebrations.
- Comrade Singaravelar was one of the leaders of the **Self Respect movement** in the Madras Presidency and passed a resolution stating the government should allow everybody a national holiday on Labour Day.

Opposition to Permanent Bru Settlement in Tripura

Why in News

In the middle of the **Covid-19 lockdown**, two community-specific groups have renewed their opposition

Note:



to the permanent settlement of Bru refugees from Mizoram in Tripura.

- The two groups namely, Nagarik Suraksha Mancha (mostly representing Bengali people displaced from erstwhile East Pakistan post-partition in 1947) and the Mizo Convention have submitted a memorandum protesting against the proposed settlement of the displaced Brus in Tripura.

Background

- **Bru or Reang** is a community indigenous to Northeast India, living mostly in **Tripura, Mizoram and Assam**. In **Tripura**, they are recognised as a **Particularly Vulnerable Tribal Group**.
- In Mizoram, they have been targeted by groups that do not consider them indigenous to the state. In 1997, following ethnic clashes, nearly 37,000 Brus fled Mamit, Kolasib and Lunglei districts of Mizoram and were accommodated in relief camps in Tripura.
- Since then, 5,000 have returned to Mizoram in eight phases of repatriation, while 32,000 still live in six relief camps in North Tripura.
 - In June 2018, community leaders from the Bru camps signed an agreement with the Centre and the two state governments, providing for repatriation in Mizoram. But most camp residents rejected the terms of the agreement.
 - The camp residents say that the agreement doesn't guarantee their safety in Mizoram.

Particularly Vulnerable Tribal Groups

- In India, tribal population makes up for 8.6% of the total population.
- Particularly Vulnerable Tribal Groups (PVTGs) are more vulnerable among the tribal groups.
- In **1973**, the **Dhebar Commission** created Primitive Tribal Groups (PTGs) as a separate category, who are less developed among the tribal groups. In 2006, the Government of India renamed the PTGs as PVTGs.
- PVTGs have some basic characteristics - they are mostly homogenous, with a small population, relatively physically isolated, absence of written language, relatively simple technology and a slower rate of change etc.
- Among the **75** listed PVTG's the **highest number** are found in **Odisha**.

- **The Centre, the governments of Mizoram and Tripura and leaders of Bru organisations signed a quadripartite agreement in January (2020)** to let the remaining 35,000 refugees who have stayed back to be resettled in Tripura.
 - The rehabilitation package included financial assistance of Rs. 4 lakh and land for constructing a house for each family.

Global Nutrition Report 2020

Why in News

The **Global Nutrition Report 2020** stated that **India is among 88 countries that are likely to miss global nutrition targets by 2025**.

- It also identified the country as one with the **highest rates of domestic inequalities in malnutrition**.

Global Nutrition Targets

- In 2012, the World Health Assembly (the decision-making body of the World Health Organisation) identified six nutrition targets to be met by 2025. These are:
 - Reduce stunting by 40% in children under 5.
 - Reduce the prevalence of anaemia by 50% among women in the age group of 19-49 years.
 - Ensure 30% reduction in low-birth weight.
 - Ensure no increase in childhood overweight.
 - Increase the rate of exclusive breastfeeding in the first six months up to at least 50%
 - Reduce and maintain childhood wasting to less than 5%.

India's Status

- India will **miss targets for all four nutritional indicators** for which there is data available, i.e.
 - Stunting among under-5 children,
 - Anaemia among women of reproductive age,
 - Childhood overweight and
 - Exclusive breastfeeding.
- **Stunting and wasting among children**
 - **Data:** 37.9% of children under 5 years are stunted and 20.8% are wasted, compared to the Asia average of 22.7% and 9.4% respectively.
 - **Inequity:**

Note:

- India is identified as **among the three worst countries**, along with Nigeria and Indonesia, for steep within-country disparities in stunting, where the levels varied four-fold across communities.
 - **For example**, Stunting level in Uttar Pradesh is over 40% and their rate among individuals in the lowest income group is more than double those in the highest income group at 22.0% and 50.7%, respectively.
 - In addition, stunting prevalence is 10.1% higher in rural areas compared to urban areas.
- **Overweight and Obesity**
- **Data:** Rate of overweight and obesity continues to rise, affecting almost a fifth of the adults, at 21.6% of women and 17.8% of men.
 - **Inequity:** There are nearly double as many obese adult females than there are males (5.1% compared to 2.7%).
- **Anaemia**
- One in two women of reproductive age is anaemic.
- **Underweight children**
- Between 2000 and 2016, rates of underweight have **decreased** from 66.0% to 58.1% for boys and 54.2% to 50.1% in girls.
 - However, this is **still high compared to the average of 35.6% for boys and 31.8% for girls in Asia.**

Link Between Malnutrition and Inequity

- The report emphasises on the link between malnutrition and **different forms of inequity, such as those based on geographic location, age, gender, ethnicity, education and wealth in all its forms.**
- **Inequities in food and health systems increase inequalities in nutrition outcomes** that in turn can lead to more inequity, perpetuating a vicious cycle.
- Coming at a time the world is battling Covid-19, which has exposed different forms of socio-economic inequities, the report calls for **promoting equity to address malnutrition.**

Malnutrition

- Malnutrition refers to **deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients.**
- The term malnutrition covers two broad groups of conditions.

- One is '**undernutrition**'—which includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals).
 - The other is **overweight**, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes and cancer).
- In April 2016, the United Nations General Assembly adopted a resolution proclaiming the **UN Decade of Action on Nutrition from 2016 to 2025.**
- The **Sustainable Development Goal (SD Goal 2: Zero hunger)** aims to end all forms of hunger and malnutrition by 2030, making sure all people – especially children – have access to sufficient and nutritious food all year round.

Global Nutrition Report

- The Global Nutrition Report was **conceived following the first Nutrition for Growth Initiative Summit (N4G) in 2013.**
- The first report was published in 2014.
- It acts as a report card on the world's nutrition—globally, regionally, and country by country—and on efforts to improve it.
- It is a multi-stakeholder initiative, consisting of a Stakeholder Group, Independent Expert Group and Report Secretariat.

Devices for Disabled and Elderly

Why in News

The Department of Science and Technology has helped in developing various assistive tools, devices and technological solutions to mitigate the impact of **Covid-19** among **Divyangjan** and **Elderly** through a programme on **Technology Interventions for Disabled and Elderly (TIDE).**

Key Points

- **Technology Interventions for Disabled and Elderly (TIDE):**
 - It is the Department of Science and Technology's (DST) focused initiative on **Science and Technology (S&T) interventions for the benefit of elderly and also the differently-abled Divyangjan persons** in the country.

Note:



- In addition to **improving the quality-of-life** of the target population with appropriate and/or innovative scientific technological interventions, TIDE also aims at giving them autonomy, and independence through holistic development by creating requisite enabling environments for their empowerment.
- Proposals on Research and Development for technological solutions with multidisciplinary approach to improve the quality of life of Elderly population and Divyangjan and in making them self sufficient are considered for financial assistance under this programme.
- **Latest Tools and Devices to tackle Covid-19:**
 - **e-Tool:**
 - It aims to create awareness and impart health and hygiene related information along with education and entertainment through tablets and mobiles.
 - It is expected to overcome loneliness of the persons with intellectual disabilities, due to Covid-19 pandemic.
 - **Wearable sensor device:**
 - It is a band to remotely monitor the activities of Elderly and Divyangjan staying alone or those who happen to be under quarantine or isolation wards.
 - The device will help the elderly to get outcomes regarding the improvement in muscle strength, flexibility and endurance without physical interventions from doctors and physiotherapists.

Data Related to Birth Rate and Death Rate

Why in News

Recently, the **Registrar General of India** released data related to birth rate, death rate and infant mortality rate in its **Sample Registration System (SRS)** bulletin for 2018.

- The rates are calculated **per one thousand of the population**.

Key Points

- **Birth Rate:**
 - India's birth rate has declined drastically over

the last four decades from 36.9 in 1971 to 20.0 in 2018.

- The rural-urban differential has also narrowed. However, the birth rate has continued to be higher in rural areas compared to urban areas.
- **Bihar** (26.2) continues to remain at the top of list in birth rate while **Andaman and Nicobar** (11.2) is at the bottom.
- Birth rate is a **crude measure of fertility of a population** and a **crucial determinant of population growth**.
- **Death Rate:**
 - The death rate of India has witnessed a significant decline over the last four decades from 14.9 in 1971 to 6.2 in 2018.
 - In the last decade, death rate at an all-India level has declined from 7.3 to 6.2.
 - The decline has been steeper in rural areas.
 - **Chhattisgarh has the highest death rate** at 8 and **Delhi**, an almost entirely urban state, **has a lowest death rate** of 3.3.

Sample Registration System

- It is a **demographic survey** for providing reliable annual estimates of infant mortality rate, birth rate, death rate, and other fertility and mortality indicators at the national and sub-national levels.
- It was initiated on a pilot basis by the **Registrar General of India** in a few states in 1964-65, it became fully operational during 1969-70.
- The **field investigation** consists of continuous enumeration of births and deaths in selected sample units by resident part time enumerators, generally anganwadi workers & teachers, and an independent survey every six months by SRS supervisors. The data obtained by these two independent functionaries are matched.

Registrar General of India

- Registrar General of India was founded in **1961** by the Government of India under the **Ministry of Home Affairs**.
- It arranges, conducts and analyses the results of the **demographic surveys** of India including **Census of India** and **Linguistic Survey** of India.
- The **position of Registrar** is usually held by a **civil servant holding the rank of Joint Secretary**.

Note:

- Mortality is one of the **basic components of population change**. The data related to it is essential for demographic studies and public health administration.
- **Infant Mortality Rate:**
 - IMR has decreased to 32 about one-fourth as compared to 1971 (129).
 - The IMR at an all-India level has declined from 50 to 32 in the last decade.
 - **Madhya Pradesh has the highest** IMR of 48 and **Nagaland has the lowest** IMR of 4.
 - **Infant mortality is** the number of deaths of children under one year of age per 1000 live births.



Note:

Security

Highlights

- *Combating Bioterrorism*
- *Abolition of Posts in MES*
- *Army's Proposal of 3 Year Tenure for Civilians*

Combating Bioterrorism

Why in News

The **Covid-19** pandemic has exposed the vulnerability of several world powers in the event of use of **biological weapons** against them by rogue states and terrorist groups.

- The **United States, Britain and the Soviet Union** were involved in developing complex biological weapons programs **after World War II** and several nations continue to do so currently as well.

Key Points

- **Bioterrorism or Biological Attack:**
 - It is the intentional release of viruses, bacteria, or other germs that can sicken or kill people, livestock or crops.
- **Biological Weapons:**
 - They use microorganisms and natural toxins to produce disease in humans, animals, or plants.
 - Biological weapons can be **derived from: bacteria, viruses, rickettsia, biological toxins and fungi.**
 - These agents can be **deployed as biological weapons** when **paired with a delivery system**, such as a **missile or aerosol device.**
 - **Bacillus anthracis**, the bacteria that causes **anthrax**, is one of the most likely agents to be used in a biological attack.
 - The most destructive bioterrorism scenario is the **airborne dispersion of pathogens** over a major population region.
 - **Tropical agricultural pathogens or pests** can be used as anticrop agents to hamper the food security worldwide.

- It is a **substantial threat** because small amounts of biotic agents can be **effortlessly hidden, transported and discharged** into vulnerable populations.
- It can **impact and expose military and civilian susceptibilities** to biological weapons and to the complexity of offering ample safeguards.
- Bioweapons experts believe that **currently bioterrorists probably lack the biotechnological capability** to produce-super pathogens or super pests.

Covid-19: Bioweapon or Not

- **Novel-coronavirus** is **alleged** to have **originated in bats.**
- Some intelligence agencies initially proclaimed that coronavirus **occurred naturally** but later on, they **claimed that the pandemic might have begun from the Wuhan lab in China** after the researchers were probably able to figure out how bat coronaviruses could mutate to attack humans.
- However, there is **no proof that the pandemic virus was engineered or manipulated**, yet.
- In the **Indian context**, with the existence of **hostile neighbours** like Pakistan and China, the **threat of biological warfare becomes important** and cannot be ruled out entirely.

Combating Bioterrorism

- The **European Union (EU), Russia and China** are finding ways to deter bioterrorism and biowarfare. The aim is to make it **harder for terrorists to obtain the resources** for designing biological weapons.
- These efforts should include:
 - **Intelligence Sharing & Rapid Detection**
 - Global intelligence agencies should operate together and share credible intelligence.
 - Combining human resources, laboratory resources and information supervision in novel,

Note:

legal and satisfactory ways that allow for timely detection and categorization of hazards.

- Rapid detection and surveillance are important for an efficient response to a bioterror strike.
- **Pathogen Analysis**
 - Speedy, uniform techniques that allow for the discovery of an extensive range of pathogens used as biological weapons in a measurable fashion.
 - Pathogens are a usual part of the environment and can complicate detection attempts.
- **Strengthening the Biological and Toxin Weapons Convention**
 - The **Biological and Toxin Weapons Convention (BTWC) of 1972 prohibits** signatory nations to develop, produce, stockpile or otherwise, acquire or retain:
 - **Microbial or other biological agents** or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes.
 - Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.
 - However, there is no exact authentication method that can ensure compliance with the BTWC. Therefore, efforts must be made to strengthen the BTWC so that it helps to uncover and successfully prevent biological weapons programs.
 - **India ratified and pledged to abide by its obligations in 2015.**
- **Biodefense Systems**
 - Upgrading and installing biodefense systems in major urban conglomerates to protect against deadly disease outbreaks initiated by bioterrorism.
 - During the **Cold War**, Soviet Union had set up several Biodefense systems across the country.
 - Developing and stockpiling vaccines and antimicrobial medicines that can be used to defend the people against infections triggered by biological weapons.
 - Coaching first responders on how to deal with a biological weapons attack.

- Refining diagnostic laboratory capability and epidemiological capabilities.

Way Forward

- The **studies** conducted to assess the actual efficiency of counter bioterrorism measures are **insufficient** which needs to be changed.
- It becomes important that **engaged and methodical efforts in studying** the efficiency of counter bioterrorism measures are **applied in a meticulous way**.
- It should be taken into account that the implementation of some specific counter bioterrorism practices can **possibly have consequences** with respect to human rights, institutional liberties, fundamental democratic values and the Rule of Law.

Army's Proposal of 3 Year Tenure for Civilians

Why in News

Recently, the Army has proposed 3 years of voluntary **Tour of Duty (ToD)** for civilians on a trial basis.

Key Points

- **Proposal:**
 - The Army plans to take civilians on a three- year **'Tour of Duty' (ToD) or 'Three-year Short Service' on a trial basis** to serve in the force as both officers and Other Ranks (ORs).
 - The proposal suggests **several measures to incentivise** this scheme like a tax-free income for three years and a token lump sum at the end of three years of about Rs.5-6 lakh for officers and Rs.2-3 lakh for ORs.
 - However, there will be no severance packages, resettlement courses, professional encashment training leave, ex-Servicemen status, ex-Servicemen Contributory Health Scheme (ECHS) for the ToD officers and other ranks.
 - The proposal is a shift from the **concept of permanent service/job** in the Armed Forces, towards **internship/temporary experience for three years**.
 - If approved it will be a **voluntary engagement** and there will be no dilution in selection criteria.

Note:



- The Army hopes that this would attract individuals from the best colleges, including the Indian Institute of Technology.
- **Rationale behind the Proposal:**
 - There is a “resurgence of nationalism and patriotism” in the country and the proposal attempts to tap the feeling of the youths who do not want to join the Army as a profession but wish to experience military life for a temporary duration.
- **Expected Benefits to the Army:**
 - **Reduction of Financial Burden:** The cost of a three-year service per officer will be a fraction of the cost incurred on Short Service Commission (SSC) officers, which includes cost of pre-commission training, pay, allowances, gratuity, leave encashment among others.
 - **Modernisation of Army:** The reduced financial burden will shift the focus towards modernisation of the army in terms of training, arms and equipment.
- **Expected Benefits to the Youth:**
 - It will not only provide a job with higher salary but also ensures a placement in corporate sectors after retirement as the corporate sector will prefer to hire such youths rather than fresh graduates.
 - It has been seen that corporates favour individuals who have been trained by the military at 26 or 27 years of age.
- **Benefits to the Nation:**
 - It will help to channelise the youth energy into positive utilisation of their potential.
 - Rigorous military training and habits inculcation will lead to healthy citizenry.
 - The entire nation will benefit from trained, disciplined, confident, diligent and committed young men or women who have done the three-year service.

Abolition of Posts in MES

Why in News

Recently, the **Defence Minister of India** has approved a proposal for the **abolition of a number of posts in the Military Engineering Service (MES)**.

- This move is in lines with the recommendations of the **Lt. Gen. D.B. Shekatkar (Retd.) Committee**.

- MES is the infrastructure development agency for the armed forces and defence establishments.

Key Points

- **Optimum Utilisation of Resources:** This step of abolition of around 9000 posts of basic and industrial staff will lead to significant savings.
 - Almost 70% of the budget is used for payment of salaries and allowances and leaves very little money for actual infrastructural development.
- **Restructuring of Workforce:** The committee also recommended to restructure the civilian workforce in a manner that the work of the MES could be partly done by departmentally employed staff and other works could be outsourced.
- **Projected Savings:** The recommendations can save up to Rs.25,000 crore in defence expenditure, if implemented over the next five years.
 - According to [Stockholm International Peace Research Institute \(SIPRI\)](#), India was among the top three top military spenders in the world in 2019 after the US and China.

Shekatkar Committee

- It was a 11-member committee, appointed by the erstwhile Defence Minister in mid-2016.
- It was headed by Lt. Gen. D.B. Shekatkar (Retd).
- It had the mandate to suggest measures to enhance combat capability and rebalance defence expenditure of the armed forces.
- It submitted its report in December 2016.
- **Recommendations:**
 - It made about 99 recommendations from optimising defence budget to the need for a Chief of the Defence Staff.
 - Of these, the first batch of 65 recommendations pertaining to the Army were approved in August 2017.
 - It recommended that **India's defence budget** should be in the range of **2.5-3% of GDP (Gross Domestic Product)**, in view of current and future threats.
 - It had also suggested the establishment of a **Joint Services War College for training of middle-level officers**, with three separate war colleges at Mhow (Madhya Pradesh), Secunderabad (Telangana) and Goa, focusing on training younger officers.

Note:

- The committee had also mooted for the **Military Intelligence School** at Pune to be converted to a tri-service intelligence training establishment.
- The recommendations on the creation of the **Chief of Defence Staff** post and a **Department of Military Affairs** have been already implemented.
- Restructuring of Army headquarters
 - The Army headquarters had instituted 4 studies with an overall aim to **enhance the operational and functional efficiency** of the force, optimize budget expenditure, facilitate modernization and address aspirations.
 - These studies are Re-organisation and right-sizing of the Indian Army, Re-organisation of the Army Headquarters, Cadre review of officers and Review of terms of engagement of rank and file.
- Government Owned Contractor Operated (GOCO) Model
 - In the model, the assets owned by the government are **operated by the private industries**.
 - The main advantage of the model is that it is efficient and will boost competitiveness among the private entities.
- Closure of Military Farms and Army Postal Establishments in peace locations.
- Other recommendations which have been implemented include, optimisation of signals establishments, restructuring of repair units, redeployment of ordnance echelons, better utilisation of supply and transportation units and animal transport entities, etc.



Note:



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Miscellaneous

Highlights

- Indian Photojournalists Won Pulitzer Prize
- National Centre for Polar and Ocean Research and Covid-19
- Vande Bharat Mission
- National Technology Day
- Parkinson's Disease
- World Red Cross Day
- National Biomedical Resource Indigenization Consortium

Indian Photojournalists Won Pulitzer Prize

Why in News

Recently, five Indian photojournalists won the 2020 Pulitzer Prize for feature photography.

Key Points

- Pulitzer Prize is awarded for **outstanding public service and achievement in American journalism, letters, and music.**
- It is awarded in the name of **Joseph Pulitzer**, a newspaper publisher who gave money in his will to Columbia University to launch a journalism school and establish the Prize.
- It was established in **1917** and is administered by Columbia University and Pulitzer Prize Board.
- Each winner receives a certificate and a US\$15,000 cash award. The winner in the public service category is awarded a gold medal.

National Centre for Polar and Ocean Research and Covid-19

Why in News

National Centre for Polar and Ocean Research, Goa has contributed in the fight against **Covid-19 pandemic** through significant analytical work in the different laboratories for research work.

- It also actively participated in the various webinars and sessions organized by the Ministry of Earth Sciences during the lockdown.

National Centre for Polar and Ocean Research

- National Centre for Polar and Ocean Research (NCPOR) was established as an autonomous Research and Development Institution of the **Ministry of Earth Sciences** in **1998**.
 - It is located in **Goa**.
- It is the nodal agency for planning, promotion, coordination and execution of the entire gamut of **polar and southern ocean scientific research** in the country as well as for the associated logistics activities.
- Its responsibilities include:
 - Management and upkeep of the Indian **Antarctic** Research Bases "**Maitri**" and "**Bharati**", and the **Indian Arctic** base "**Himadri**".
 - Management of the **Ministry's research vessel** ORV Sagar Kanya as well as the **other research vessels** chartered by the Ministry.
 - **Scientific research activities** being undertaken by several national institutions and organizations in Antarctica, the Arctic and in the Indian Ocean sector of the Southern Ocean.
 - Geoscientific surveys of the country's **Exclusive Economic Zone (EEZ)** and its extended continental shelf beyond 200m, deep-sea drilling in the Arabian Sea basin through the **International Ocean Discovery Program (IODP)**, exploration for ocean non-living resources such as **gas hydrates** and multi-metal sulphides in mid-ocean ridges.
 - IODP is an international marine research collaboration that explores Earth's history and dynamics using ocean-going research platforms to recover data recorded in seafloor sediments and rocks and to monitor subseafloor environments.

Note:



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Vande Bharat Mission

Why in News

The Indian nationals stranded overseas due to the global **coronavirus lockdown** are expected to return under the **Vande Bharat Mission**.

- Further, the Indian Navy has also launched **Operation "Samudra Setu"** (sea bridge) to repatriate Indian citizens from overseas.

Key Points

- Vande Bharat Mission is the biggest evacuation exercise to bring back Indian citizens stranded abroad amidst the **coronavirus**-induced travel restrictions.
 - It is also considered as the largest exercise to bring back Indian citizens since the evacuation of 177,000 from the Gulf region in the early 1990s at the start of hostilities between Iraq and Kuwait during the first Gulf War.
- The mission has given **priority to Indian citizens** with **"compelling reasons to return"** – like those whose employment have been terminated, those whose visas have expired and not expected to be renewed under the present circumstances and those who have lost family members in recent times.
- Under the repatriation plan, the government will be facilitating the return of Indian nationals stranded abroad on compelling grounds **in a phased manner**.
- Air India and its subsidiary Air India Express will operate **64 flights** to bring back **stranded Indians** from **12 countries**.
- The entire **cost of travel** will be **borne by the passengers** under the mission.

Operation Samudra Setu

- The program named **Samudra Setu by Indian navy** entails to bring back around two thousand Indians in two ships during the first phase of evacuation.
- **INS Jalashwa** and **INS Magar** are being operated as part of efforts to repatriate Indian nationals from foreign shores.

National Technology Day

Why in News

India observes its National Technology Day on **11th May** every year.

Key Points

- The day which was **first observed on 11 May, 1999**, aims to commemorate the scientific and technological achievements of Indian scientists, engineers. The day was **named by the former Prime Minister Atal Bihari Vajpayee**.
- Every year, the **Technology Development Board of India** (a statutory body under the Ministry of Science and Technology) celebrates the day by awarding individuals with National Award for their contribution to science and technology in India.
- The focus this year is **'Rebooting the economy through Science and Technology.'**

Significance

- It is the day India successfully tested **nuclear bombs in Pokhran on May 11, 1998**.
 - India successfully test-fired its Shakti-1 nuclear missile in operation called Pokhran-II, also codenamed as **Operation Shakti**.
 - The nuclear missile was tested at the Indian Army's Pokhran Test Range in Rajasthan. This was the second test which was **conducted after Pokhran-I** codenamed **Operation Smiling Buddha**, in May 1974.
- On the same day, India performed a successful test firing of the **Trishul Missile** (surface to air short range missile) and had test flown the first indigenous aircraft – **'Hansa – 3'**.

Parkinson's Disease

- Parkinson's disease is a **chronic, degenerative neurological disorder** that affects the central nervous system.
- It damages nerve cells in the brain **dropping the levels of dopamine**. Dopamine is a chemical that sends behavioural signals from the brain to the body.
- The disease causes a variety of **"motor" symptoms** (symptoms related to movement of the muscles), including rigidity, delayed movement, poor balance, and tremors.

Note:

- Medication can help control the symptoms of the disease but it **can't be cured**.
- It affects the age group from 6 to 60 years. Worldwide, about 10 million people have been affected by this disease.

World Red Cross Day

Why in News

Recently, the World Red Cross Day was celebrated by the **Indian Red Cross Society (IRCS)**.

Key Points

- World Red Cross day is observed on **8th May**, on the **birth anniversary of Henry Dunant**, who was the **founder of the International Committee of the Red Cross**.
 - Henry Dunant was also the **recipient of the first Nobel Peace Prize**.

Indian Red Cross Society

- IRCS is a **voluntary humanitarian organization** to protect human life and health with the help of its network of over 1100 branches throughout India.
- It was **established in 1920** and has completed its 100 years of existence.
- It is a **part of** the largest independent humanitarian organisation in the world, the **International Red Cross and Red Crescent Movement**.
- Its **mission** is to provide relief at the time of disasters/emergencies and also promotes healthcare facilities among vulnerable people and communities.
- The **President of India** is the President and the **Union Health Minister** is the Chairman of the Society.
- **Aim:** To inspire, initiate and encourage all kinds of humanitarian activities under all times and circumstances.
- **Programmes:** Promotion of humanitarian principles and values, disaster response, disaster preparedness and health and care.

- The Red Cross Society is **based on 7 principles** namely, humanity, impartiality, neutrality, independence, voluntary, unity and universality.

National Biomedical Resource Indigenization Consortium

Why in News

Recently, the Department of Biotechnology (DBT) has launched a **National Biomedical Resource Indigenization Consortium (NBRIC)** to drive **indigenous innovation** focused on developing reagents (used in chemical reactions), diagnostics, vaccines and therapeutics for **Covid-19**.

- It is a **Public Private Partnership (PPP)** hosted and led by the **Centre for Cellular and Molecular Platforms (C-CAMP)**.

Key Points

- It is a **'Make in India' initiative** for biomedical research and innovative products, towards promoting import substitution and exports.
- It aims to establish a **nation-wide collaborative platform** for convergence of research, product resources and services towards developing reagents, diagnostics, vaccines, and therapeutics across India.
- It **identifies providers/manufacturing enterprises** of crucial bio-medical resources and **connects** them with policy makers as well as with other stakeholders from public and private sectors.

Centre for Cellular and Molecular Platforms

- It is one of the centers for technology-based **innovation and entrepreneurship in the field of life sciences** under the **DBT**.
- It intends to develop state-of-the-art technologies and to provide training on these technologies to academia and industry.



Note:

