



VAJIRAM & RAVI

(Institute for Civil Services Examination)

MAY 2020

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Articles



Mains
Q & A



Prelims
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India-China Border Dispute

Covid-19 and MSME

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From the Desk of the Director

Dear Students

The preparation of current affairs magazine is an evolutionary process as its nature and content keeps changing according to the demands of Civil Service Exam. As you are aware about the importance of current affairs for the prelims as well as mains exam, our aim is to follow an **integrated approach** covering all stages of examination from prelims to interview. Keeping these things in mind, we, at Vajiram and Ravi Institute, are always in the process of evolving our self so as to help aspirants counter the challenges put forward by UPSC.

In fulfillment of our objective and commitment towards the students, we have introduced some changes in our current affairs magazine. The CA Magazines, now with the name of “**The Recitals**”, will have four sections. These are:

1. **Feature Article:** As you are aware of the fact that civil service mains exam has become quite exhaustive and analytical, especially since 2013 after the change in syllabus, we have decided to focus on 2-3 topics every month that will provide an insight into the issue so as to help students understand the core of the issue. This will help in Essay writing as well as Mains Exam.
2. **Mains Q&A:** New students quite often struggle to find out that in what way the given topic is useful for them and in what form questions can be framed from the article. To help those students, we at Vajiram and Ravi have designed an innovative way to teach current affairs. Now, we will cover the current issues through questions and answers so as to make it more targeted towards exam. This will not just provide the information and analysis on current issues but will also help in learning the art of answer writing. Further the related information on the topics on which questions have been framed but that is outside the purview of answer will be given in the Box as ‘**Extra Mile**’.
3. **Prelims Q&A:** This section will contain prelims based MCQs that will test your diligence while reading the current issues. These MCQs will be of UPSC standard and will contain detailed explanation. Students are advised to attempt these MCQs honestly and read the Explanation carefully. The idea is to also provide students with a question bank of around 600 current affairs MCQs (50 Qs × 12 months = 600 Qs) just before their prelims examination, which will act as revision on issues spanning over the entire year.
4. **Bridging Gaps:** This section will contain miscellaneous topics which has not been covered through Q&A. That is why it is called Bridging Gaps, meaning the left-over topics.

So, the new magazine is a complete overhaul of what we have been doing for so long. We hope that the new beginning will be to the liking of students.

Thanks

Best Wishes

India-China Border Dispute

Recently, Indian and Chinese troops have **clashed at various points along the Line of Actual Control (LAC)**. Standoff at the LAC occurred at **four places: Pangong Tso, Galwan Nalah and Demchok in Ladakh and at Naku La** (a mountain pass at an altitude of over 5000 metres) **in Sikkim**.

Reasons for The Current Standoff

- The **specific reasons for these clashes remain unclear**. Also, it must be noted that incidents such as these are not entirely uncommon along the LAC as both sides have **differing perceptions of the alignment of boundaries**.
- However, co-ordinated nature of Chinese intrusions at different points along the LAC have raised concerns about Beijing's intention.
- Many analysts believe that it is **China's reaction to Indian efforts** over the last few years to build border infrastructure. China has always been **ultrasensitive to India expanding its presence at LAC**.
- India's **construction of a feeder road** was perhaps the first critical trigger — this road connects the **LAC near the Galwan River with the DS-DBO road** (discussed in later section).
- India is also **building a road in Pangong lake area** which was another point of standoff. Although both **new roads lie on the Indian side of the LAC**, their purpose is to **strengthen further the Indian position along the LAC** which might have irritated China.
- China fears that these activities might threaten its **occupation of Aksai Chin and Lhasa-Kashgar highway**. Any threat to this highway also puts Chinese plans in Pakistan-occupied territories in Ladakh and Jammu and Kashmir, and beyond in Pakistan.
- Also, China remains much more concerned about the **newly constructed road from Dharchula to Lipulekh** (the gateway to Kailash-Mansarovar). China believes the newly inaugurated road has **affected China's border security in Tibet**.
- According to China, by building this road, **India has moved its frontier vis-a vis China**, gaining direct access to the **concrete highway in Purang county in Tibet**, and has thereby changed the status quo in the region.
- Last year, India decided to **split Ladakh from Jammu and Kashmir**, a move that unsettled Pakistan. Many experts believe India's aggressive position on the issue of Ladakh and PoK is the reason behind current standoff.

What Is China Trying To Signal

- This time, the scope, scale and posture of China's moves were unprecedented.
- China is facing a **dramatically slowing economy, criticism for the handling of the outbreak of the coronavirus and worsening ties with many countries**.
- Against this backdrop, Chinese leaders may have felt the **need to show strength**, especially **over questions of national sovereignty**.

- This can be seen, not only regarding the border with India, but also with regard to Taiwan, Hong Kong and the South China Sea.
- It should also be kept in mind that **China considers the United States as its main rival**, not India. Hence, **China generally seeks to maintain stability in the border dispute with India.**

Current Status

- Both sides are currently engaged in the dialogue process at appropriate level to ease off the tension.
- Senior military commanders of India and China are scheduled to meet on 6th June to find a solution
- Ahead of this meeting, both sides have slightly retreated from their current positions. While the Chinese army has reportedly retreated by 2 kms, the Indian Army has stepped back by one kilometer.

Sino – India Border Dispute: Background

- The territorial dispute along the China-India border **falls across three different areas.**
- The **eastern sector**, about 90,000 square kilometers, corresponds roughly to the Indian state of Arunachal Pradesh and is **under Indian control.**
- The **western sector**, sometimes called **Aksai Chin or part of Ladakh**, involves about 33,000 square kilometers and several districts in Xinjiang, and is under **Chinese control.**
- The **central or middle sector**, west of Nepal, is the smallest contested area, around 2,000 square kilometers, and control is divided.
- **In 1993**, after years of territorial standoffs and negotiations, **China and India finally signed an agreement** which attempted to mark out a long stretch of border between the two countries.
- **That border is known as the line of actual control**, but its precise location can be blurry, and there is still dispute between China and India
- So far, this **LAC has served as the de facto border** between these two countries. However, in at least 13 places, however, the two sides disagree over where the LAC lies.

What Has Changed Across LAC Since 1962

- Since 1962, India has tried to strengthen its position on the border and its presence along the LAC.
- India is **close to completing a major upgrade of border roads**, including a strategic military-use road that **connects an airfield at Dalut Beg Oldie** in the northern tip of the western sector with the **villages of Shyok and Darbuk toward the south.**
- Completed in 2019, this “**DS-DBO road**” greatly facilitates the lateral movement of Indian forces along this part of the western sector, reducing travel time by 40 percent.
- India expects to **complete a network of feeder roads to the LAC by 2022.**

- India has also **reactivated and rebuilt airfields along the border**. It has also **raised two mountain divisions** and is creating a **mountain strike corps** to conduct offensive operations against China along the border.
- Last year, the newly established corps demonstrated its capabilities in India's "**Him Vijay**" military exercise.

Conclusion

- Although not a single bullet has been fired across LAC in last 32 years. However, the increased frequency of standoffs between these two countries are major cause of worry.
- If the standoff drags on, nationalistic fervour is bound to kick in. The resultant public groundswell would restrict the options available to political leaders on both sides to resolve the issue.

[For detailed discussion on India-China border dispute, including the 2017 Doklam standoff, please refer the Yellow book on International Relation]

Coastal Regulation Zone

The Ministry of Environment, Forest and Climate Change amended the Coastal Regulation Zone Notification, 2011. The Coastal Regulation Zone Notification declares certain coastal stretches as Coastal Regulation Zone and imposes **restrictions on the setting up and expansion of industries, operations and processes in this zone**.

The amendment to the notification provides that **certain areas of mangroves will be protected under the notification**. These include mangrove areas arising due to saline water access beyond a sluice gate (constructed before 19th Feb' 1991). Therefore, these mangroves shall not be diverted for any developmental activities.

Coastal Zone And CRZ Norms

- The coastal zone is a **transition area between marine and territorial zones**. It includes shore ecosystems, wetland ecosystems, mangrove ecosystems, mudflat ecosystems, sea grass ecosystems, salt marsh ecosystems and seaweed ecosystems.
- In India, the Coastal Regulation Zone (CRZ) Rules **govern human and industrial activity close to the coastline, in order to protect the fragile ecosystems near the sea**. They restrict certain kinds of activities — like large constructions, setting up of new industries, storage or disposal of hazardous material, mining, reclamation and bunding — within a certain distance from the coastline.
- The basic idea is: because areas immediately next to the sea are extremely delicate, home to many marine and aquatic life forms, both animals and plants, and are also threatened by climate change, they need to be protected against unregulated development.
- Under CRZ Rules, the regulation zone has been defined as **the area up to 500 m from the high-tide line (HTL)**. The restrictions depend on criteria such as the population of the area, the

ecological sensitivity, the distance from the shore, and whether the area had been designated as a natural park or wildlife zone.

Evolution of Rules

- After the passing of the Environment Protection Act in 1986, **CRZ Rules were first framed in 1991**. After these were found to be restrictive, the Centre notified new Rules in 2011, which also included exemptions for the construction of the Navi Mumbai airport and for projects of the Department of Atomic Energy.
- After even these Rules were found inadequate, however, the Environment Ministry in 2014 set up a six-member **committee under Shailesh Nayak** to give suggestions for a new set of CRZ Rules. The committee submitted its report in 2015.
- Based on these and other inputs, the **Environment Ministry issued fresh CRZ Rules in 2018**, which removed certain restrictions on building, streamlined the clearance process, and aimed to encourage tourism in coastal areas.

Classifications of CRZ Areas

Coastal stretches within 500 ms of HTL on the landward side are classified into four categories, namely:

1. **Category I (CRZ-I):** It includes areas that are **ecologically sensitive and important**, such as national parks/marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs etc and areas between the LTL and HTL.
 - **Regulations: No new construction shall be permitted in CRZ- I** areas except (a) projects relating to the Department of Atomic Energy, and (b) pipelines, conveying systems including transmission lines, (c) exploration and extraction of oil and natural gas
2. **Category-II (CRZ-II):** This category includes **areas that have already been developed up to or close to the shoreline**.
 - **Regulations: Buildings shall be permitted only on the landward side of the existing road** or on the landward side of existing authorised structures.
3. **Category-III (CRZ-III):** Areas that are relatively undisturbed and do not belong to the first two categories. These will include coastal zones in rural areas (developed and undeveloped), areas within municipal limits, or in legally designated urban areas that are not substantially built up.
 - **Regulations:**
 - **Areas up to 200 metres from the HTL** have to be earmarked as a '**No Development Zone**'. However, Agriculture, horticulture, gardens, pastures, parks, play fields, forestry, and salt manufacturing from sea water may be permissible in this zone.
 - The construction/reconstruction of dwelling units between 200 and 500 metres of the HTL permitted if they are within the ambit of traditional rights and customary uses such as existing fishing villages.
 - Reconstruction/alterations of an existing authorised building permitted.

4. **Category-IV (CRZ-IV):** Coastal stretches in the **Andaman & Nicobar, Lakshadweep** and small islands, except those designated as CRZ-I, CRZ-II, or CRZ-III.
- **Regulations:**
 - **Andaman & Nicobar Islands:** No new construction shall be permitted within 200 ms of HTL.
 - **Lakshadweep and small islands:** For permitting construction, the distance from the HTL shall be decided depending on the size of the islands.
 - Buildings between 200 and 500 metres from the HTL shall not have more than 2 floors, the total covered area shall not be more than 50% of the plot size, and the total height shall not exceed 9 metres. (Applicable to both Andaman & Nicobar and Lakshadweep islands).

Coastal Regulation Zone (CRZ) Notification, 2018

Salient Features

- **Allowing FSI as per current norms in CRZ areas:** As per CRZ, 2011 Notification, for CRZ-II (Urban) areas, Floor Space Index (FSI) or the Floor Area Ratio (FAR) had been frozen as per 1991 Development Control Regulation (DCR) levels. In the CRZ, 2018 Notification, it has been decided to **de-freeze the same and permit FSI for construction projects**, as prevailing on the date of the new Notification. This will enable redevelopment of these areas to meet the emerging needs.
- **Densely populated rural areas to be afforded greater opportunity for development:** For **CRZ-III (Rural) areas**, two separate categories have now been stipulated as below:
 - a) **CRZ-III A** - These **are densely populated rural areas** with a population density of 2161 per square kilometre as per 2011 Census. Such areas shall have a **No Development Zone (NDZ) of 50 meters** from the HTL as against 200 meters from the High Tide Line stipulated in the CRZ Notification, 2011 since such areas have similar characteristics as urban areas.
 - b) **CRZ-III B** - Rural areas with population density of below 2161 per square kilometre as per 2011 Census. Such areas shall continue to have an **NDZ of 200 meters from the HTL**.
- **Tourism infrastructure for basic amenities to be promoted:** Temporary tourism facilities such as shacks, toilet blocks, change rooms, drinking water facilities etc. have now been permitted in Beaches. Such temporary tourism facilities are also **now permissible in the "No Development Zone" (NDZ) of the CRZ-III areas** as per the Notification. However, a minimum distance of 10 m from HTL should be maintained for setting up of such facilities.
- **CRZ Clearances streamlined:** Only such projects/activities, which are located in the CRZ-I (Ecologically Sensitive Areas) and CRZ IV (area covered between Low Tide Line and 12 Nautical Miles seaward) shall be dealt with for CRZ clearance by the Ministry of Environment, Forest and Climate Change. The **powers for clearances with respect to CRZ-II and III have been delegated at the State level** with necessary guidance.
- **A No Development Zone (NDZ) of 20 meters has been stipulated for all Islands:** For islands close to the main land coast and for all Backwater Islands in the main land, in wake of space limitations and unique geography of such regions, bringing uniformity in treatment of such regions, NDZ of 20 m has been stipulated.

- **Pollution abatement has been accorded special focus:** In order to address pollution in Coastal areas, treatment facilities have been made permissible activities in CRZ-I B area.
- **Defence and strategic projects** have been accorded necessary dispensation.

Benefits

- The proposed CRZ Notification, 2018 will lead to **enhanced activities in coastal regions**, thereby promoting economic growth while also respecting the conservation principles of coastal regions.
- It will not only result in significant **employment generation** but also to better life and add value to the economy of India.
- The new notification is expected to **rejuvenate coastal areas while reducing their vulnerabilities**.

Criticisms

- **Commercial And Industrial Expansion In Coastal Areas:** Comptroller and Auditor General (CAG) of India has pointed out that the frequent amendments, made to the notification, have paved way for commercial and industrial expansion in coastal areas, while natural disasters have become more frequent causing severe loss to human lives and property. Coastal regulation zone notification has been amended 37 times not to protect the coast but to open it for development.
- **Destruction Of Ecosystems:** After classifying ecologically sensitive areas under CRZ-I A, activities such as mangrove walks, tree huts, nature trails, etc, were exempted in the name of ecotourism as tourism facilities. When such activities are permitted in the fragile ecosystems, it is likely to disturb marine life further leading to depletion and destruction of the ecosystems in due course of time.
- **Conflict With Fishing Community:** Developing beach tourism may further lead to conflict with the fisher folk who depend on the beach for their livelihoods. CRZ-III areas are the ones where traditional communities live and subsist on the natural resources. While the notification changed the land use in CRZ-III areas to bring in tourism, its impact on the livelihood of local communities have not been taken into account.
- **Lack Of Punitive Measures:** If the regulations listed in the CRZ Notification are implemented properly, the coastal zones can be safeguarded against encroachments. However, since it is only a notification without any punitive measures, it could not be enforced strictly.
- **Coastal Zone Management Plan (CZMP):** The CRZ Notification 2011 entailed a CZMP, to be prepared by the coastal states within a year. However, till 2018, many states had not prepared any plan; while few plans submitted lacked any proposal for housing facilities for fisherfolk.
- **Notification Has Been Drafted To Facilitate Flagship Projects Of The Government:** Its provisions for land reclamation and permission to build roads even in ecologically sensitive CRZ-I facilitates the creation of coastal economic zones (CEZs). The government has declared **Sagarmala, Bharatmala and CEZs as “strategic projects”**, which have blanket exemption from CRZ provisions. To boost industrial and exports growth, Sagarmala envisages setting up 14 CEZs.

Violation of CRZ Norms- Recent Cases

- There have been cases of courts ordering **demolition of resorts or apartments for violating CRZ norms**. But stakeholders have either obtained stays, or have got relief in the Supreme Court.
- The **razing of four illegal apartment complexes in Maradu, Kerala**, was ordered by the Supreme Court in May 2019, for breaching Coastal Regulation Zone (CRZ) norms. And recently the last of the four illegal apartment, was razed by controlled implosion, marking the completion of the demolition drive.
- Some 26 resorts and hotels on Thiruvananthapuram's Kovalam beach have been served notices for violations of CRZ Rules. In the Kochi Municipal Corporation area, 35 violations have been reported.

Conclusion

Under these circumstances, it is imperative to bring in a stringent coastal policy, **to conserve both the ecology and the communities**. The govt, instead of releasing notification after notification and introducing infinite number of amendments, should come up with a comprehensive act for coastal areas.

COVID-19 AND MSME

MSMEs in India are a heterogeneous group in terms of size and structure of units, products and services offered, their scales of production, and the use of technology, with a considerable number of them falling in the unorganised sector. MSMEs make up the heart of the larger industrial ecosystem, acting largely as ancillary units for the big enterprises, and employ across 5 crore units, an estimated 11 crore persons.

An extended lockdown has had an adverse impact on industries, MSMEs in particular, as cash flows are drying up too fast. Some companies are struggling to pay salaries to employees, while some are looking at winding up operations rather than continue with an unprofitable enterprise. At stake are not only these jobs but the future of what makes up 45 per cent of the country's total manufacturing output, 40 per cent of exports — and almost 30 % of the national GDP.

Labour Distribution In MSMEs

- According to the latest Annual Report of Department of MSMEs (2018-19), there are 6.34 crore MSMEs in the country. Around 51 per cent of these are situated in rural India and together, they employ a little over 11 crore people but 55 per cent of the employment happens in the urban MSMEs.
- These numbers suggest that, on average, less than two people are employed per MSME. At one level that gives a picture of how small these set-ups are, but a breakup of all MSMEs into micro, small and medium categories is even more revealing.

- As 99.5 per cent of all MSMEs fall in the micro category, the medium and small enterprises — that is, the remaining 0.5% of all MSMEs — employ the remaining 5 crore-odd employees.

Socio-Geographic Distribution Of MSMEs In India

- While micro enterprises are equally distributed over rural and urban India, small and medium ones are predominantly in urban India. In other words, micro enterprises essentially refer to a single man or a woman working on their own from their home.
- In terms of geographical distribution, seven Indian states alone account for 50 per cent of all MSMEs. These are Uttar Pradesh (14%), West Bengal (14%), Tamil Nadu (8%), Maharashtra (8%), Karnataka (6%), Bihar (5%) and Andhra Pradesh (5%).
- The distribution of enterprise by caste further completes the picture. About 66 per cent 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%).
- The gender ratio among employees is largely consistent across the board at roughly 80% male and 20% female.

Problems Faced By MSMEs In India

A. Out Of The Formal Network

- To begin with, most of the MSMEs are not registered anywhere. A big reason for this is that they are just too small, as even GST has its threshold and most micro enterprises do not qualify. This apparent invisibility tends to work for enterprises as well as against them.
- Being out of the formal network, they do not have to maintain accounts, pay taxes or follow regulatory norms etc. This brings down their costs but, as it is clear in a time of crisis, it also reduces government's ability to help them.
- For instance, in some of developed countries, the govt has tried to directly provide wage subsidy and extra credit to smaller firms but that could happen because even smaller firms were being mapped.

B. Lack of Financing

- According to a 2018 report by 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.
- In other words, most of the MSME funding comes from informal sources and this fact is crucial because it explains why the Reserve Bank of India's efforts to push more liquidity towards the MSMEs have had limited impact.
- A key reason why banks stay away from extending loans to MSMEs is the high ratio of bad loans. Data shows that the defaults are higher for relatively bigger enterprises.
- The other big issue plaguing the sector is the delays in payments to MSMEs — be it from their buyers (which includes the government also) or things like GST refunds etc.

Issues Faced By MSMEs During The Lockdown

- Problems faced by MSMEs are multi-fold: from the break-down of the credit cycle, lack of availability of working capital to paying salaries and fixed costs even as units are closed, and an inability to even encash their assets to maintain solvency.
- Companies use working capital for their day-to-day expenses. While the fixed expenses — such as salaries to employees — have remained constant even during the lockdown, there's been no income or cash that has come for a non-essential manufacturer or service provider.
- Even those operating in the essential item segment also seem to be impacted. Pharmaceutical MSMEs have reported facing serious issues with arranging accommodation for their workforce, as they do not have the infrastructure or money for it.
- While RBI data shows that the credit outstanding to the sector has contracted, many economists said credit availability may further tighten with banks turning more risk averse now.
- Since a large number of state capitals have been classified in red zones, this is also a huge problem for MSME owners to find the points for sales across sectors.
- Add to this the huge question mark over labour availability as and when the lockdown opens given that most of them employ migrants who are either stuck in camps or are trying to return home.
- To address the issues faced by the MSMEs the government has recently announced an economic relief plan. The announcement follows the Prime Minister's announcement of a Rs 20-lakh-crore plan to deal with the impact of Covid-19.

Steps Taken By The Government To Mitigate The Impact Of CoVID On MSMEs

1. Change in Definition

- The government has decided to expand the definition of MSMEs, which will enable a larger number of enterprises to be classified as MSMEs and, therefore, be able to avail of the benefits.
- There has always been a fear, among successful MSMEs, that if they outgrow the size of what has been defined as an MSME, they will lose their entitled benefits. This is why MSMEs like to remain within the definition rather than grow. Thus, the govt has decided to expand the definition of MSMEs

New Definition

- As per the proposal, micro enterprises will be those with investment of up to Rs 1 crore and turnover of up to Rs 5 crore — the earlier definition classified investments of up to Rs 25 lakh for manufacturing and up to Rs 10 lakh for services.
- For small enterprises, the classification covers up to Rs 10 crore in investment and Rs 50 crore in turnover, against investment of up to Rs 5 crore in manufacturing and up to Rs 2 crore in services.
- The medium enterprises in the manufacturing and services sectors will now include companies with investment of Rs 50 crore in plant and machinery and turnover up to Rs 250 crore.
- It has also been decided that the turnover with respect to exports will not be counted in the limits of turnover for any category of MSME units. Exclusion of exports from turnover will benefit a lot of gems and jewellery companies, which would have breached MSME criteria due to the cost of their inputs.

2. Emergency Credit Line For Standard MSMEs

- Aimed at reducing the economic distress being faced MSMEs by providing them additional funding in the form of a fully Guaranteed Emergency Credit Line (GECL), the Union Cabinet has approved funding of up to Rs 3 lakh crore through the Emergency Credit Line Guarantee Scheme (ECLGS) for the MSME sector.
- The main objective of the Scheme is to provide an incentive to Member Lending Institutions (MLIs), i.e., banks, Financial Institutions (FIs) and Non-Banking Financial Companies (NBFCs) to increase access to, and enable availability of additional funding facility to MSME borrowers.

Details of ECLGS

- The National Credit Guarantee Trustee Company (NCGTC) will provide 100 per cent guarantee against losses on loans given to eligible micro, small, and medium enterprise (MSMEs) and MUDRA borrowers under the scheme which is open till October 31 2020.
- Banks and NBFCs can provide emergency credit lines to MSMEs up to 20 % of their outstanding credit as on Feb' 2, 2020. Borrowers with up Rs 25 crore outstanding & Rs 100 crore turnover are eligible.
- Interest rates under the Scheme are 9.25 per cent for banks and financial institutions and 14 per cent for non-banking financial companies (NBFCs).
- The tenor (duration) of the loan under the scheme shall be four years with a moratorium period (authorized delay) of one year on the principal amount.

3. Partial Credit Guarantee For Stressed MSMEs

- While full credit guarantee is being provided to MSME whose loans are standard, stressed small companies whose loans have been classified as NPA (non-performing assets) will be given subordinate debt by banks against a partial credit guarantee provided by the government.
- The Centre will provide Rs 4,000 crore as funding support to CGTMSE (Credit Guarantee Fund Trust for Micro and Small Enterprises) — which will help in facilitating Rs 20,000 crore of subordinate debt to nearly 2 lakh enterprises.

4. Fund of Funds for Equity Support

- The Cabinet also approved setting up of a Rs 50,000 crore Fund of Funds to provide equity support to growth oriented MSMEs, with an aim to help them enhance capacity, while also encouraging them to get listed on stock exchanges.
- This would help growing companies with good track record get equity funding from the government at initial stages, which they can then capitalise while listing on stock exchanges.
- After the companies get listed on the stock exchange and their prices eventually go up, the government will sell its stake after a particular level and reinvest those funds in other companies.
- The proposed Fund will also benefit from such eventual listing of the MSMEs, as listing of companies will help free up capital of the Fund which can be further used for equity infusion.

5. Enhanced Limits Of Government Purchase

- Going forward, the Union government will not buy goods or services valued less than Rs 200 crore from foreign suppliers. For this purpose, the General Financial Rules (GFR) will be amended to disallow global tender enquiries.
- This is an attempt is to protect MSMEs from the downturn and create assured demand for their goods and services.
- Under the existing guidelines for purchase, amended in May 2019, government agencies were required to procure goods and services worth less than Rs 50 lakh from local suppliers.

Need For Credit Guarantees

- Even before the Covid-19 crisis, Indian government finances were in poor health. This pandemic has meant that government revenues will come under further pressure. Experts are already proposing a GDP contraction of 5% to 10% in the current financial year, which will result in a revenue loss of anywhere between Rs 5 to 7 lakh crore.
- Efforts to push liquidity via the banks have not helped because banks simply do not want to lend any new money. Banks, quite justifiably, suspect that any new loans will only add to their growing mountain of non-performing assets (NPAs).
- So, the government was facing an odd problem, where the 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.
- Thus, the government had to resort to the credit guarantee scheme in order to balance the conflicting positions in the economy and address the lack of liquidity.
- In other words, instead of directly infusing money into the economy or giving it directly to MSMEs in terms of a bailout package, the government has resorted to taking over the credit risk of MSMEs should they want to remain in business. A credit guarantee by the government helps as it assures the bank that its loan will be repaid by the government in case the MSMEs fails to do so.

Benefits Of The Announcements

- The Rs 3 lakh crore credit guarantee is the most substantive announcement as it will most likely have a significant impact in helping MSMEs pay salaries and continue to operate even as the economy slows down. This measure will help as many as 45 lakh MSMEs. While this is a small proportion (about 0.5%) of the overall number of MSMEs, these are likely to be the enterprises, which employ almost 40% of all employees.
- The change in definition of MSMEs will also help because “turnover” is the more efficient way to identify an MSME and it also 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.
- The redefinition will assist the MSME sector in growing and emerging as a vibrant and dynamic sector, contributing to self-reliance and employment in a big way.

Issues With The Announcement

- There is a risk of deteriorating credit culture as bankers would have no liability, which may lead to an increase in adhoc disbursement of loans.
- A 100% credit guarantee leaves no incentive for either borrower to pay back — he has nothing to lose — or for the lender — as the banker is assured of payback from the government.
- As a result, it is quite likely that the government will have to start paying money to cover these loans in the next financial year when MSME NPAs rise once the moratorium is over.
- A better option would have been a split (say an 80%-20%) wherein the government assures to pay back only 80% of the new loan, which would have helped to bypass the problem of a moral hazard.

The measures are targeted at avoiding large-scale business closures, which could impact the financial system systemically and disrupt supply chains in the coming days. However, the success of the scheme depends on these measures working as a multiplier to improve the risk appetite of lenders and induce fresh funding of distressed smaller firms.

MAINS Q&A

1. **The induction of India into the SCO represents a fine example of mutualism. It would greatly help New Delhi in achieving its vital national interests and at the same time, the presence of India would give unbound legitimacy to the organization. Discuss.**

Answer

The Shanghai Cooperation Organisation (SCO) is an intergovernmental international organization which aims to promote cooperation among member countries in the security sphere, especially to deal with the evils of terrorism, separatism, and extremism. India and Pakistan became SCO members in 2017.

Significance of SCO for India:

- India's security, geopolitical, strategic and economic interests are closely intertwined with developments in the region.
- India feels as an SCO member it will be able to play a major role in addressing the threats of **terrorism, radicalism and instability**. The **Regional Anti-Terrorism Structure (RATS)** of SCO specifically deals with issues relating to security and defence.
- In addition, the Central Asian region is **richly endowed with natural resources** and vital minerals. However, there is **lack of direct land connectivity** to this region. Joining the SCO will be a welcome diplomatic boost to India's efforts to connect with Central Asia.
- Being a full member of the SCO India would be in a position to **plan its policy to effectively deal** with China's ambitious initiative of One Belt, One Road and "China Pakistan Economic Corridor" (CPEC).

Importance of India for SCO

- India could bring to the SCO table its **techno-economic expertise, market and multi-cultural settings for the benefit of the region**. The presence of India, **the world's largest democracy** would give unbound legitimacy to the organisation.

- India today is the **fastest expanding global economy**. Hence, the induction will add muscle to the organization.
- India is an energy deficient country. India's rapidly expanding energy needs will provide a **stable and assured market** for these countries.
- India's vast **experience in dealing with the terrorism** can help Central Asian countries to counter the menace of global terrorism. India is playing active role in Afghanistan and Iran.
- **Russia** has been facing the **recognition crisis** of being a global power, ever since it was imposed sanctions by western countries and was ousted from the Group of Eight (G8).
- As Moscow views the SCO's as a getaway to regaining its lost international legitimacy, India's induction would further enhance Russia's stature in the international arena.

Conclusion

- While the inclusion of India will **further boost the organisational capacity** of the SCO, New Delhi would further get an opportunity to enhance its role as a big power in the 21st century.
- However, India will have to tread cautiously as there might be a possibility that SCO might be used as a counterweight against USA. Also, it needs to **find greater convergence with China and Russia**.

Context

- Virtual summit of the Shanghai Cooperation Organisation (SCO) member nations' foreign ministers took place on May 13, 2020.
- The video conference was **hosted by Russia**.
- India was represented by External Affairs Minister S Jaishankar.
- The **SCO Council of Heads of State Meeting** (SCO Summit) is scheduled to be held in **Saint Petersburg** later this year.

Key Highlight

- The participating members discussed regional and global issues with as particularly focus on **developing cooperation in the context of the spread of COVID – 19**.
- Other issues included - the upcoming 75th anniversary of the Victory in WWII and the 75th anniversary of the United Nations.
- The regular meeting of the **SCO foreign ministers is due to be held in Moscow** on June 9-10.
- The foreign ministers also discussed the preparations for the SCO Council of Heads of State meeting to be held in St Petersburg later this year.

About SCO

Please refer The Recitals – Nov' 2019

2. **Army's proposed 3-Year internship for Youth in the form of 'Tour of Duty' scheme is a good step for nation building. In this context, discuss the advantages and disadvantages of this scheme.**

Answer

The Indian Army has proposed an opportunity for civilians who would like to serve in the Indian army. This opportunity comes in the form of 'Tour of Duty'. The scheme allows civilians of the country to join the Indian Army for three years and serve the country as an army soldier. The proposal is yet under process.

Key Highlights

- Tour of Duty will be launched with around **100 vacancies for officers and 1000 for jawans**.
- This course set up by the Indian Army will help with the improvement of self-confidence, teamwork, initiative, stress management, innovation and a sense of responsibility.
- The **pay scale will be at par with the regular Army without any pension** or mandated "severance package". However, battle casualties and disabled soldiers will be treated at par with regular soldiers

Advantages

- **Foundation stone for New India** - The scheme will ensure that a trained, disciplined, confident, and committed workforce is available for government jobs and to the corporate world.
- **Reduction in Defence Expenditure** – The scheme will lead to the exponential reduction in the salary and pension bill. It is being expected that by adopting the tour of duty scheme the **army could save up to Rs 11,500 crore in pay and pensions**.
- It will also **make up for the shortage of officers** in the Army.
- **Increased Nationalism and Patriotism** – At a time, when India is grappling with various secessionist tendencies, this scheme will imbibe a nationalistic feeling among youths which in turn will be helpful in promoting unity and integrity of India.

Disadvantages

- **Might erode operational readiness** – Duty to timing constraint, a Tour of Duty Officer is unlikely to be given more than 3-6 months pre-commission training. Also they might not get any post-commission training.
- **Commitment will not be the same as that of a normal officer** - A tour of duty officer will consider himself "in transit" and he will be more concerned about what happens after three years than about his role in the army.
- **Neither here nor there** - A minimum of five years is necessary to enable the individuals to earn gratuity as per government policy. Besides the experience and salary during the term of services, the candidate will gain nothing.
- **Similar schemes already exist** - We have a well established **Territorial Army** which have performed creditably in war and counter-insurgency. To give military experience even to the youth, we have the **National Cadet Corps (NCC)**.

Conclusion

- An attractive short term scheme, which **strikes a balance** between the standards of training and operational requirements of the armed forces and needs of the individual, is the **most cost-effective method of managing military budgets**.
- The **real issue is the terms and conditions** that have to be laid down by the government.
- **Israel has successfully implemented** a mandatory three-year military service for its youths. This has helped in the nation-building process of Israel.

- However, we must keep in mind that Israel model is conscripted mandatory national service and not driven by patriotism per se.
- Focusing only on **neo-nationalism as the sole motivator** to join the scheme will only end up creating potential political militias.

Short Service Commission (SSC)

- The SSC is a very important scheme for individuals who would **not like to make the defence services their permanent vocation** and a scheme that would also cater to the shortage of officers in the three services.
- Prior to 2006, the SSC was **applicable for a period of five years**, extendable for **another five years** and then for a **further four years (i.e. 5+5+4)**.
- In 2006, to make SSC more attractive, the earlier 5+5+4 years system **was changed to 10+4 years**, thereby making the initial tenure of **10 years mandatory for earning benefits, including ex-serviceman status**.

3. **With wheat harvesting over in Punjab, the State has witnessed a spike in incidents of stubble burning against the last two years. In this light discuss the causes and issues associated with stubble burning and suggest a way forward?**

Answer

Punjab and Haryana have abjectly failed, for several years, in clamping down on crop-stubble burning, one of the chief reasons why Delhi's air turns so toxic in the winters, despite the apex court having banned the practice.

Causes Of Stubble Burning:

- **Low-cost solution:** Burning straw is considered a low-cost solution alternative to tilling in the straw. Under such circumstances, farmers may feel they have no choice but to burn the straw.
- **Poor implementation of law:** Burning crop residue is a crime under Section 188 of the IPC and under the Air and Pollution Control Act of 1981. However, government's implementation lacks strength.
- **Late harvest:** With a late harvest season, farmers are often concerned that they will not be able to complete proper tillage operations in the fall. If producers are unable to complete tillage operations in the fall, seeding can be delayed in the spring, which has the potential to negatively impact the next season's crop. As a result, many choose burning as a residue management option.
- **Issues with Combine Harvesters:** There is extensive use of big 'Combine Harvesters' in large parts of Punjab, Haryana & Western UP, since the labour cost for manual harvesting is rather high. These machines cut the plant and harvest the grains from the top part of the plant, thus leaving behind a much longer stem part of the plant that remains standing on the ground.
- **Bad and myopic policy:** The fatally-flawed procurement and price support policy of the government has **encouraged paddy-cultivation in Haryana and Punjab**, which, in turn, has also led to groundwater in the states falling to critical levels.

Issues Associated With Stubble Burning

- **Pollution:** A study estimates that crop residue burning released 149.24 million tonnes of carbon dioxide (CO₂), over 9 million tonnes of carbon monoxide (CO), 0.25 million tonnes of oxides of sulphur (SOX), 1.28 million tonnes of particulate matter and 0.07 million tonnes of black carbon. These directly contribute to environmental pollution, and are also responsible for the haze in Delhi and melting of Himalayan glaciers.
- **Heat penetration:** The heat from burning paddy straw penetrates 1 centimetre into the soil, elevating the temperature to 33.8 to 42.2 degree Celsius. This kills the bacterial and fungal populations critical for a fertile soil.
- **Damaging micro-organisms:** Burning of crop residue causes damage to other micro-organisms present in the upper layer of the soil as well as its organic quality. Due to the loss of 'friendly' pests, the wrath of 'enemy' pests has increased and as a result, crops are more prone to disease.
- **Loss of soil nutrients:** One tonne stubble burning leads to a loss of 5.5 kilogram nitrogen, 2.3 kg phosphorus, 25 kg potassium and more than 1 kg of sulfur — all soil nutrients, besides organic carbon.
- **Solubility:** The solubility capacity of the upper layers of soil have also been reduced.
- **Visibility Issues:** The smoke produced by burning the paddy straws block sunlight. The visibility drops so much that it even causes road accidents.
- **Health issues:** The residents of the villages, where stubble burning took place, are facing serious health risks as the poisonous smog has threatened the air quality of the state. A study revealed that 84.5 per cent people were suffering from health problem due to increased incidence of smog.

Way Forward

- **Improving the design of Combine Harvesters:** It is both impractical (in view the large number of farmers, running into millions) and also unjust to blame the farmers for the stubble burning. Therefore, instead of penalising and prosecuting the farmers, our focus should be on developing and improving the design of Combine Harvesters that do not leave the stubble behind.
- **Incentivize the farmers for not burning the stubble,** by providing economic value for this crop residue or stubble, which may be converted into either cattle feed or fuel (in the form of briquettes). The government may consider setting up “**Agri- waste Collection Centres**” alongside the “Paddy Purchase Centres”, where the farmers may sell their agri-waste at a reasonable price and earn some additional income and are not tempted to burn it.
- **Converting agri-waste/crop residue:** The industries which are converting this agri-waste/crop residue into wealth in the form of cattle feed or fuel briquettes, may also be suitably incentivised and subsidized.
- **Encourage and incentivize the farmers to go for early paddy,** so as to give them enough time to harvest and thereafter prepare their fields for the next Rabi crop.
- **Alternative crop:** Encourage and educate the farmers to go for alternate fruit and vegetable crops, instead of paddy, that not only consume less water but also give better economic returns.
- **Use it for other purposes:** Instead of burning of the stubble, it can be used in different ways like cattle feed, compost manure, roofing in rural areas, biomass energy, mushroom cultivation, packing materials, fuel, paper, bio-ethanol and industrial production, etc.

4. Explain the working and advantages of Aarogya Setu App in preventing the spread of COVID-19. Also discuss concerns associated with it and suggest measures to address such concerns.

Answer:

Aarogya Setu (means "bridge to health" in Sanskrit) App is an Indian mobile application for tracking COVID-19. This contract tracing technology was developed by National Informatics Centre (NIC) under the Ministry of Electronics & Information Technology (MeitY). The application has become the world's fastest app to reach 50 million downloads in just 13 days.

Working Principles

- The app uses the phone's **Bluetooth** and **GPS capabilities**. It uses location data to point out people that have come in close proximity with any Covid-19 positive patient. The application requests for access to location at all times and also asks for Bluetooth access after download.
- It keeps a record of all other Aarogya Setu users that it detected nearby using Bluetooth. It also uses a GPS log of all the places that the device had been at 15-minute intervals.
- After download, a self-assessment test is put forward where the user is asked about their current health and whether they are showing any of the symptoms of Covid-19. The user will also have to declare their travel history.
- The app considers Bluetooth range as a proximity sensor under which the user can be infected by another Covid-19 positive patient. When two smartphones with the app installed in them come in each other's Bluetooth range, the app will exchange information. If one of the users is positive, the other person will be alerted about the possibility of being infected. These potential cases are then notified to the government for further testing.

Advantages

- The application acts as a **one-stop solution for spreading awareness about COVID-19**, helping self-diagnose users and provide updates to the authorities on new cases.
- Moreover, since Bluetooth technology is being used, **no internet is not an issue**.
- It also **recommends precautionary measures to the users and social distancing practices** amidst COVID-19.
- It could also be used as an **e-pass for travelling** from one place to another.

Concerns

The Aarogya Setu app been made mandatory for citizens living in containment zones and for all govt and private sector employees, or employees involved in any form of product delivery. It has also been made compulsory for air and train travel. However, the app has been questioned on few grounds -

- The data collected by the Aarogya Setu app is broadly divided into four categories — demographic data, contact data, self-assessment data and location data, collectively called **response data**. But concerns have been raised by experts and even ethical hackers on the **privacy of data**. Critics say that Arogya Setu could infringe privacy as there was no clarity on how data would be shared between the two applications.
- The policy goes into some detail on where and how long the data will be retained. But the **data being shared with third parties** was one of the biggest concerns as it **was left open ended** and had a possibility of misuse. This **puts personal information at risk**.

- Further, the **process of de-identifying the data should have been detailed**, given that reversing de-identification was not difficult.
- Under the Terms of Service (TOS), the government is obligated to delete certain personal data after a 30-day time period. However, there exists **no framework to check compliance of the same**.
- Moreover, the **closed source architecture** of the application **violates the transparency principle**.
- The usage of the app is being **imposed through executive order instead of having legislative sanction**. Former Supreme Court judge **BN Srikrishna** said the drive to make people use the app was "utterly illegal", as it is not backed by any law.

Measures To Be Taken

The government must address the privacy concerns raised by the experts. Recently, the Ministry of Electronics & Information Technology issued a data-sharing and knowledge-sharing protocol for the Aarogya Setu app, laying down guidelines for sharing such data with government agencies and third parties. However, more such measures need to be taken:

- The decision of such nature should be **backed by a personal data protection law**.
- The government should **list the third parties with which the data can be shared**.
- There should be **more transparency on the inner workings of an app** which is asking for the personal details of millions of citizens.
- More **safeguards** need to be put in place **against data thefts and other breaches**.
- The app should be **made open source to maintain transparency** and balance between disease control and citizen's privacy. **For example**, in Singapore, the TraceTogether app can be used only by its health ministry to access data. It assures citizens that the data is to be used strictly for disease control and will not be shared with law enforcement agencies for enforcing lockdowns and quarantine.

Conclusion

Across India, there are efforts to build databases of people's health records to enable easier treatment, including through telemedicine. If instances of misuse of the Aarogya Setu app emerge, then people will not trust other government initiatives involving health records, even if they are undertaken with due care, inclusive consultations, and respect for privacy. Therefore, these issues must be addressed. Currently, India's personal data protection bill is in the process of being approved by Parliament. It should be passed addressing all issues associated with the data protection concerns of the citizens.

5. **Unique Identification Authority of India (UIDAI) has allowed the Common Service Centre (CSC), to start the Aadhaar updation facility. What are Common Services Centers (CSCs)? Discuss its role in building Digital India?**

Answer

The Common Service Centres are an IT enabled **front-end delivery points for Government, private and social sector services to rural citizens** of India in an integrated and seamless manner. It is an initiative of the Ministry of Electronics & IT (MeitY).

The idea is to digitise the delivery of certain government schemes (such as certificates, licenses and so on), and outsource this to private **Village Level Entrepreneurs (VLEs)** who will run Common Service Centres. It encourages more and more participation of women to become VLE and increasing their contribution in the social and economic development.

Advantages Of CSCs

- **Reducing Citizens' Efforts And Resources:** The CSCs reduced the citizens' efforts and resources in availing services within their localities by eliminating their visit to Government offices and providing services at affordable price.
- **Transparency:** Routing transactions digitally onto a public portal could facilitate transparency and timeliness of the service provision.
- **Accountability:** Providing an alternative avenue for application for a service from the implementing department could increase accountability. This is particularly relevant for social welfare programmes such as old age pensions and ration cards.
- **Employment Generation:** A CSC is managed by Local unemployed, educated youth providing opportunities for direct and indirect employment.
- **Integrated framework for delivery and dissemination:** These CSCs also emerged as models for information and facilitation. By providing correct and free information on government schemes, eligibility and application procedures, they could take forward the mandate of Section 4 of the Right to Information Act which mandates proactive disclosure of key information of all public authorities.

Role of Common Services Centers (CSCs) in Building Digital India

Digital India is a flagship programme of the Government of India with a vision to transform India into a **digitally empowered society** and knowledge economy. The CSCs are an integral part of Digital India Programme. They are the access points for delivery of various digital services to villages and rural areas across the country and contribute towards fulfilling the Government's mandate of a **digitally and financially inclusive society**. CSCs enable the vision of the Digital India programme in the following ways:

- **Access Of e-Services To Citizens:** The CSCs would provide high quality and cost-effective video, voice and data content and services, in the **areas of e-governance, education, health, telemedicine, entertainment** as well as other private services. It also offers web-enabled e-governance services in rural areas, including application forms, certificates, and utility payments such as electricity, telephone and water bills.
- **Financial Inclusion**
 - **Banking:** CSC Special Purpose Vehicle (SPV), as a **Corporate Banking Correspondent**, has signed agreement with 26 Banks which will enable CSCs to become Banking Correspondent Agents to deliver various banking and financial services.
 - **Insurance:** It has been granted license by Insurance Regulatory and Development Authority (IRDA) to market specific insurance products and services through Rural Authorised Persons (VLEs). The services include: Life Insurance, Motor Insurance, Crop Insurance, Health Insurance, Cattle Insurance, and Personal Accident Insurance from 37 Insurance companies.
- **Disbursement Of Government Entitlements:** It has partnered with the country's retail payment platform NPCI to launch Aadhaar-enabled payment system. This service facilitates disbursement of government entitlements like payment under MGNREGA, social security pension, handicapped and old age pensions of any central or state government bodies, using Aadhaar authentication. At present, withdrawal as well as deposit facilities are available through CSCs under this system.
- **Health Services**

- CSC is offering video based *tele-consultation service in allopathy, ayurvedic and homeopathy systems* throughout India at affordable rates, through the platform of **Digital Seva Portal**.
- They also partnered with Bureau of Pharma to set up **generic medicine stores under the Jan Aushadhi Scheme at CSCs**, with an aim to improve access to affordable and quality medicines for citizens in rural and remote areas.
- **Electronic Toll Collection:** Indian Highways Management Company Ltd (IHMCL) has inked a pact with CSC e-Governance Services for the issuance of FASTags through CSCs to ensure faster implementation of electronic toll collection.

Conclusion

The implementation of the CSC based service delivery model by the Gol has been a major **strategic decision to eliminate the digital divide gap** that exists between the rural and urban, as well as economically less and able citizens.

However, CSCs are more than just the service delivery points in rural India, and are positioned as **change agents** promoting rural entrepreneurship and building rural capacities and livelihoods. They are enablers of **community participation and collective action** for engendering social change through a bottom-up approach with key focus on the rural citizen.

6. **The Global Nutrition Report 2020 was recently released. Highlight the findings of the report along with the interventions required to address the issues that hinder nutritional security of the world.**

Answer

The Global Nutrition Report, a multi-stakeholder initiative comprising global institutions and led by experts in the field of nutrition was recently released.

Highlights Of The Report

- At present, one in every nine people or around 820 million people are hungry in the world, and one in every three is overweight or obese. More and more countries experience the double burden of malnutrition, where undernutrition coexists with overweight, obesity and other diet-related non-communicable diseases (NCDs).
- Although everyone deserves access to healthy, affordable food and quality nutrition care, yet this access is hindered by deeper inequities that arise from unjust systems and processes that structure everyday living conditions.
- Most of the poor across the world cannot access or afford healthy food primarily because of agricultural systems that favour calories over nutrition on one hand and on the other the ubiquity and low cost of highly processed foods.
- With only five years left to meet the 2025 global nutrition targets, not one country is on course to meet all the 2025 global nutrition targets.
- Almost a quarter of all children under 5 years of age are stunted. At the same time, overweight and obesity are increasing rapidly in nearly every country in the world, with no signs of slowing.
- Progress on malnutrition is not just too slow, it is also deeply unfair. New analysis shows that global and national patterns mask significant inequalities within countries and populations, with the most vulnerable groups being most affected.

Findings From India

- On India, the report notes that the country has had some success in reducing the number of underweight children and adolescents.
- Between 2000 and 2016, these rates declined from 66 to 58.1 % for boys and from 54.2 to 50.1 % for girls, but is still high compared to the average of 35.6 % for boys and 31.8 % for girls in Asia.
- Additionally, 37.9 per cent Indian children under-5 are stunted and 20.8 per cent are wasted, compared to the Asia average of 22.7 per cent and 9.4 per cent, respectively.
- While diet-related illness continues to be an issue, with one in two women of reproductive age being anaemic, rates of overweight and obesity continue to rise, affecting almost one-fifth of adults with 21.6 per cent females and 17.8 per cent men being obese.
- Also, India is home to largest number of within-country malnutrition inequalities based on communities at the sub-national level, with UP having over 40 per cent children stunted on average and at 50.7 per cent among the poor.
- The same applies for overweight/obesity, where there are nearly double as many obese adult females than there are males -- 5.1 per cent against 2.7 per cent.

Way ahead

- Countries should implement strong regulatory and policy frameworks to support healthier diets for all at country and community level and across sectors, from production to consumption.
- Further, there is a need to optimise agricultural subsidies and increase public investment for producing a broader range of more diverse and healthier foods.
- The food industry should be held accountable for producing and marketing healthier and more sustainable food products through strengthened mechanisms.
- Support should be provided for public transport schemes and shorter supply chains for fresh-food delivery products, particularly to the most nutritionally disadvantaged or harder-to-reach groups.
- Research should be strengthened, with increase in funding to address major nutrition questions, identify cost-effective solutions and stimulate innovation.

To ensure that healthy and sustainably produced food is the most accessible, affordable and desirable choice for all, various sectors must work together to mainstream nutrition into all elements of the food system, which will help the world to fast track its progress to achieve the global nutrition targets.

Extra Mile

The Global Nutrition Report was established in 2014 following the first 'Nutrition for Growth' summit, as an accountability mechanism to track progress against global nutrition targets and the commitments made to reach them.

Global Nutrition Targets

In 2012, the World Health Assembly endorsed a comprehensive implementation plan on maternal, infant and young child nutrition, which specified six global nutrition targets for 2025

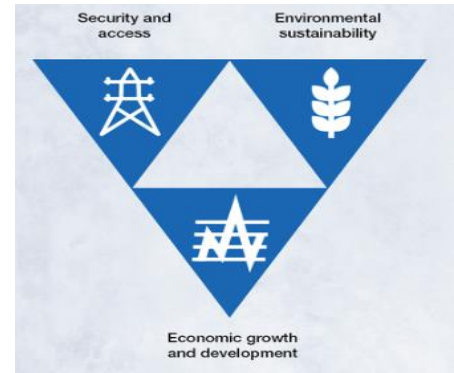
- 40% reduction in the number of children under-5 who are stunted.
- 50% reduction of anaemia in women of reproductive age.
- 30% reduction in low birth weight.
- No increase in childhood overweight.
- Increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%

- Reduce and maintain childhood wasting to less than 5%

7. The World Economic Forum recently released the Energy Transition Index. Highlight the findings of the index along with the impact of Covid 19 on the future of Energy transition.

Answer

- The World Economic Forum recently released the Energy Transition Index (ETI) which takes into account 115 economies.
- It benchmarks the current performance of their energy systems across three indicators - Economic development and growth; Environmental sustainability; and Energy security and access - and their readiness for transition to secure, sustainable, affordable, and inclusive energy systems.



Highlights Of The Index

- The global energy transition has been moving at a slow, but steady pace. Of the 115 countries benchmarked on the ETI, 94 have improved their scores since 2015. **Sweden** has topped the ETI for the third consecutive year and is followed by Switzerland and Finland in the top three.
- Surprisingly, France (ranked 8th) and the UK (7th) are the only G20 countries in the top ten and scores for the US (32th), Canada (28th), Brazil (47th) and Australia (36th) were either stagnant or declining. The US ranks outside the top 25 per cent for the first time, primarily due to the uncertain regulatory outlook for energy transition.
- The greatest overall progress is observed among emerging economies, with the average ETI score for countries in the top 10 per cent remaining constant since 2015, signalling an urgent need for breakthrough solutions.
- Argentina, China, India and Italy are among the major countries with consistent annual improvements. Others, such as Bangladesh, Bulgaria, Czech Republic, Hungary, Kenya, and Oman have also made significant gains over time.
- This progress 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.
- However, this hard-won progress highlights the limitations of relying only on incremental gains from existing policies and technologies to complete the transition to clean energy.

Highlights on India

- India has moved up two positions to **rank 74th** with improvements across all three dimensions of the energy triangle. India is one of the few countries in the world to have made consistent year-on-year progress since 2015.
- For India, gains have come from a government-mandated renewable energy expansion programme, now extended to 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.

- This indicates a strong positive trajectory, driven by strong political commitment, an enabling policy environment, along with consumer engagement and investment, innovation and infrastructure, among others.

Covid's Impact On Energy Transition

- As per the index, the coronavirus pandemic 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.
- There has been unprecedented collaboration among leading Oil & Gas producing countries to provide stability to markets, but the recent price volatilities will be a stress test for the energy system.
- Over the past five years, most countries have reduced the level of energy subsidies, reflecting the movement towards cost-reflective pricing. Cost of utility bills, already a sensitive issue in many countries, will worsen the affordability challenge as unemployment rises due to economic consequences.
- Covid-19 has forced companies across industries to adapt to operational disruption, changes in demand and new ways of working, and governments have introduced economic recovery packages to help mitigate these effects.
- Thus, 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 acute crisis subsides.

If implemented with long-term strategies in mind, they could also accelerate the transition to clean energy, by helping countries scale their efforts towards sustainable and inclusive energy systems.

8. Recently RBI announced a slew of measures to deal with the debilitating effects of the Covid induced lockdown. Delineate the measures along with their impact.

Answer

- With a prolonged Covid induced lockdown, the Monetary Policy Committee (MPC), believes that the macroeconomic impact of the pandemic is turning out to be more severe than initially anticipated. Hence, the RBI has announced a set of steps to deal with the stress on various sectors of the economy.
- The MPC has reduced its key policy rates to stabilize the financial system. In doing so, the RBI panel unexpectedly cut the repo rate by 40 basis points to 4 per cent. Consequently, the Marginal Standing Facility (MSF) rate and the bank rate have reduced to 4.25% from 4.65% and the reverse repo rate has reduced to 3.35% from 3.75%.
- The RBI has cut the repo rate by a total of 115 bps since the lockdown began in late March. It also marks the eighth straight rate cut by the RBI.

Impact Of Rate Cut

- The rate cut will immediately result in retail loans becoming cheaper for borrowers whose EMIs are linked to the repo rate. These include home loans and other retail loans viz auto and personal loans.

- The marginal cost of lending rate (the benchmark for loans to corporates) of all banks will get revised next month, based on a formula and the interest rates on deposits are set to come down further due to the increase in banks deposits and the fall in credit demand.
- Further, the 40 bps cut in reverse repo rate — the interest rate that the RBI offers to banks for funds parked with the central bank — will prompt banks to make available funds for the productive sectors of the economy.
- This will help in correcting an imbalance wherein banks have been parking close to Rs 7-8 lakh crore at the RBI's reverse repo window instead of lending these funds.

Extension Of Moratorium On Loans

- The RBI has allowed lenders to extend an ongoing moratorium on loan repayment, which was due to end on May 31, by another three months to August 31. All borrowers, including home loan, term loans and credit card outstanding, will get the benefit of the moratorium.
- This will help borrowers, especially corporates which have halted production and are facing cash flow problems, to get more time to stabilize their operations and restart their units.
- Furthermore, the RBI has allowed borrowers and banks to convert the interest charges during the moratorium period (from March 1 to August 31) into a term loan which can be repaid by March 2021. This is expected to reduce the burden on borrowers who have gone for a moratorium.

Increased Exposure Limit Of Banks

- Due to the COVID-19 pandemic, debt markets and other capital market segments are witnessing increased uncertainty. As a result, many corporates are finding it difficult to raise funds from the capital market and are predominantly dependent on funding from banks.
- Thus, to facilitate the flow of funds to corporates, RBI has decided to increase bank's exposure to a group of connected companies from 25 % to 30 % of the eligible capital base of the bank.
- Under the existing guidelines on the **Large Exposures Framework**, the exposure of a bank to a group of connected counter-parties should not be higher than 25 per cent of the lender's eligible capital base at all times. The increased limit will be applicable up to June 30, 2021 and is expected to help banks meet the borrowing requirements of the private sector.

Extension In Remittance Timeline

- Due to the Covid-19 related disruptions in cross-border trade, there has been a slowdown in manufacturing and sale of finished products and a delay in the payment, both domestically and overseas. This has led to an increase in the length of the operating cycle for business entities.
- Thus, the central bank has decided to extend the time period for completion of remittances against normal imports into India from 6 months to 12 months from the date of shipment for such imports made on or before July 31, 2020. However, the extension will not be applicable in cases where amounts are withheld due to guarantee of performance.
- The measure will help in providing greater flexibility to importers in managing their operating cycles in a COVID-19 environment.

Way Ahead

- Although, the RBI did not mention any specific figure on the growth rate, it expects the growth to be in the negative territory in 2020-21. Given the limited data from the National Statistical Office, the RBI could not forecast the inflation numbers, but it expects prices to increase in the first half due to supply-side issues and decrease in the second half of the year.

- The RBI has however assured that it will continue to monitor the situation and use all its instruments, along with coming up with new ones to mitigate its impact on the economic activity and the livelihood and health of the people.

9. Amid the coronavirus-induced lockdown, an increasing number of states have pushed through changes to their labour laws. Evaluate the said move of dilution in labour laws.

Answer

As the economy struggles with the lockdown and thousands of firms and workers stare at an uncertain future, various state governments have made significant changes in the application of labour laws. UP, the most populous state, has made the boldest changes as it summarily suspended the application of almost all labour laws in the state for the next three years.

Labour Laws in India

- Estimates vary but there are over 200 state laws and close to 50 central laws and yet there is no set definition of “labour laws” in the country.
- Broadly speaking, they can be divided into four categories viz. laws regulating conditions of work, laws regulating wages and remuneration, laws regulating social security and laws regulating employment security and industrial relations.
- The main objectives of the Factories Act, for instance, are to ensure safety measures on factory premises, and promote health and welfare of workers.
- The Shops and Commercial Establishments Act, on the other hand, aims to regulate hours of work, payment, overtime, weekly day off with pay, other holidays with pay, annual leave, employment of children and young persons, and employment of women.
- The most contentious labour law, however, is the Industrial Disputes Act, 1947 as it relates to terms of service such as layoff, retrenchment, and closure of industrial enterprises and strikes and lockouts.

Issues With Labour Laws

- Indian labour laws are often characterised as inflexible and it has been argued that due to the various onerous legal requirements, firms (those employing more than 100 workers) hesitate from hiring new workers because firing them requires government approvals.
- Even the organised sector is increasingly employing workers without formal contracts. This, in turn, has constrained the growth of firms on the one hand and provided a raw deal to workers on the other.
- It has also been pointed that there are too many laws, often unnecessarily complicated, and not effectively implemented, which lays the foundation for corruption and rent-seeking.
- Essentially, if India had fewer and easier-to-follow labour laws, firms would be able to expand and contract depending on the market conditions, and the resulting formalisation (at present 90% of India’s workers are part of the informal economy) would help workers as they would get better salaries and social security benefits.

Criticisms Of Dilution In Labour Laws

- According to a World Bank survey, labour laws are not as big a barrier to industrial growth as shortcomings of electricity, infrastructure or logistics.

- Various experts have characterised the current dilution of labour laws as creating an enabling environment for exploitation. That's because the removal of all labour laws will not only strip the labour of its basic rights but will also create conditions which can drive down wages.
- Wage growth had been moderating even before the Covid-19 crisis, due to the deceleration in the economy. If labour laws are removed, most employment will effectively turn informal and the workers won't have any platform for grievance redressal.
- Theoretically, it is possible to generate more employment in a market with fewer labour regulations. However, as the experience of states that have relaxed labour laws in the past suggests, dismantling worker protection laws have failed to attract investments and increase employment.
- Already there is too much unused capacity and firms are making job cuts as the overall demand has fallen, it is unlikely that firms would hire more employees in the current circumstances.

Thus, in the current scenario when the industry and workers are suffering together, it would be better for governments to partner with industries in order to share the wage burden and ensure the well-being of labourers, while investing in the overall infrastructure improvement to create an attractive ecosystem for companies across the world to set shop in India in the long run.

10. The Government recently announced various long awaited reforms for the agriculture and allied sector under the AtmaNirbhar Bharat Abhiyan. Highlight the various measures announced, with their intended impact.

Answer

The Covid induced lockdown has had a debilitating effect on the agriculture sector impairing livelihoods of almost half the workforce of the country. In this regard, govt has taken certain steps -

Agriculture Infrastructure Fund

- With supply chain disruptions during COVID-19, revealing critical gaps in agricultural infrastructure and logistics systems, the government has announced plans for a ₹1 lakh crore farm infrastructure fund. The **Agriculture Infrastructure Fund** will be financed and managed by the National Bank for Agriculture and Rural Development (NABARD).
- Financing will be provided to primary agriculture cooperative societies, farmer producer organisations, agriculture entrepreneurs and start-ups to develop cold chain storage and other post-harvest management infrastructure at the farm gate and aggregation points.
- In the process, it will significantly contribute towards mitigating post-harvest losses and wastage by giving a fillip to scientific storage facilities and also help the small farmers earn additional income by way of value-added agri-produce.

Essential Commodities Act

- The Centre will deregulate sale of six types of agricultural produce, including cereals, edible oils, oilseeds, pulses, onions and potatoes, by amending the Essential Commodities Act, 1955.
- Stock limits will not be imposed on these commodities except in case of national calamity or famine or an extraordinary surge in prices, and even in such exceptions the stock limits would not apply to processors and exporters.

- The amendment, if implemented in the right spirit, will remove various roadblocks and help both farmers and consumers while bringing in relative price stability. It will also prevent wastage of agri-produce that happens due to lack of storage facilities.

APMC

- The Centre has been attempting to reform agricultural marketing through a model Act which it encourages States to adopt. However, it now intends to enact a central law to allow farmers to sell produce at attractive prices beyond the current mandi system, facilitating barrier-free inter-State trade and e-trading.
- While agriculture is a state subject and state governments have accordingly enacted their own APMC Acts, the new Central law relies on Article 301 of the Constitution along with entries in the Seventh Schedule. These give powers to the Centre to regulate all inter- and intra-state trade and commerce in foodstuffs, which can be used to create an integrated national market by removing restrictions placed by APMC laws.
- The proposed law will open more choices for the farmers and help them in getting better prices. By removing barriers in inter-state trade and facilitating the movement of agri-goods, the law could lead to better spatial integration of prices. It will help farmers of regions with surplus produce to get better prices and consumers of regions with shortages, lower prices.

Contract Farming

- Another reform announcement is the creation of a “facilitative legal framework” for contract farming. This will, again, enable farmers to bypass APMC mandis and, instead, engage directly with processors, produce aggregators, large retailers and exports “in a fair and transparent manner”.
- That would, essentially, mean farmers and buyers entering into contracts, wherein the former is assured of a certain price at the time of sowing and latter procures the harvested produce at the pre-decided rate subject to its meeting agreed quality norms. Both parties are, thus, insulated from excessive market risk — in the event of prices falling (for farmers) or rising (for processors).

Other Announcements Under Agri And Allied Sector

- An **Animal Husbandry Infrastructure Development Fund** of Rs 15,000 crore has been announced that will help to raise capacity in the Indian dairy industry by 50 per cent. The fund aims to support private investment in dairy processing, value addition and cattle feed infrastructure. Utilisation of the fund will lead to employment generation for over three million people in the rural economy and will boost production and exports of several value added products.
- **National Animal Disease Control Programme for Foot and Mouth Disease (FMD) and Brucellosis** was also launched with a total outlay of Rs 13343 crore ensuring 100 per cent vaccination of cattle, buffalo, sheep, goat and pig population of 530 million animals. While 15 million cows and buffaloes have been tagged and vaccinated so far, the programme will prevent an annual loss of Rs 60,000 crore in milk and milk products in the country due to FMD and Brucellosis.
- The **National Medicinal Plants Board** will spend ₹4,000 crore on herbal cultivation over 10 lakh hectares with a special focus on an 800 hectare corridor of medicinal plants on the banks of the Ganga.
- **Operation Green** -- A price fixation scheme that aims to ensure that farmers are given the right price for their produce -- will be expanded to cover all fruits and vegetables from just the tomatoes, onions and potatoes as of now. This will be done with an additional allocation of ₹500 crore. The scheme will have a 50% subsidy on transportation from surplus to deficient markets and 50%

subsidy on storage, including cold storage. It is to be a pilot project for six months and then extended thereafter.

- **Rs 500 crore for beekeeping initiatives** has been allocated, which will benefit 200,000 people in rural areas. The scheme aims to improve infrastructure for integrated beekeeping development centres, collection, marketing and storage centres and post-harvest and value addition facilities
- The **Pradhan Mantri Matsya Sampada Yojana** was also announced which will establish a robust fisheries management framework. This will address critical gaps in the value chain, including infrastructure, modernisation, traceability, production, productivity, post-harvest management, and quality control.

Conclusion

It is commendable that the government has taken this moment of crisis as an opportunity to bring in these long pending reforms. If implemented in the right spirit, the announced reforms can turn out to be a 1991 moment of economic reforms for agriculture and go a long way in building efficient value chains across the agri sector and significantly improving livelihoods of the neglected farmers.

11. Recently, USA announced that it would withdraw from Open Skies Treaty. What is Open Skies Treaty? Discuss the possible impact of withdrawal of USA from the treaty.

Answer

- The Open Skies treaty **was signed in 1992** and took effect in 2002. The treaty allows member nations to make surveillance flights over each other's countries to build trust.
- In other words, this treaty allows nations to fly over each other's territory with elaborate sensor equipment **to assure that they are not preparing for military action.**
- Recently, the Trump administration has announced to pull out of this treaty. This is the **third arms control agreement** Trump has left (Iran nuclear deal in 2018, and the Intermediate-range Nuclear Forces treaty in 2019)

Reasons Given by USA

- USA accused Russia of repeatedly violating the pact's terms.
- US claimed that **Russia restricted U.S. overflights** of Georgia and the Russian military enclave in Kaliningrad on the Baltic coast.
- At the same time, Russia had been using its own overflights of American and European territory to **identify critical U.S. infrastructure for potential attack** in time of war.

Possible Ramifications:

- **Trust Deficit** – One of the major aims of this treaty was to foster mutual trust especially between two superpowers – USA and Russia. Unarmed overflights are aimed at bolstering confidence and providing members forewarning of surprise military attacks.
- **Weakening of European security** – It is being feared that the U.S. exit from the treaty will halt Russian overflights of the United States. This could **prompt Moscow's withdrawal.**
- This in turn would end overflights of Russia by the remaining members, **weakening European security at a time that Russian-backed separatists are holding parts of Ukraine and Georgia.**

- The clarification came a day after lawyers and regional parties opposed the shifting of service matters, now pending before Jammu and Kashmir courts, to the CAT, Chandigarh.
- In an order issued by the Department of Personnel and Training (DoPT), the CAT, Chandigarh, was granted jurisdiction of the Benches in Haryana, Himachal Pradesh and Punjab and in the Union Territories of Chandigarh, Jammu and Kashmir and Ladakh.
- A section of media later reported that "Government of India shifts all service matters of employees of J&K and Ladakh UTs to Chandigarh CAT". However, the ministry clarified that neither the petitioner nor the lawyer needs to go to Chandigarh for filing a petition or appearing before the tribunal. The term Chandigarh circuit is being misinterpreted to mean that the petitioner or lawyer would have to go to Chandigarh.

About Central Administrative Tribunal

- The Central Administrative Tribunal (CAT) was set up in 1985 with the principal bench at Delhi and additional benches in different states.
- The CAT exercises original jurisdiction in relation to recruitment and all service matters of public servants covered by it. Its jurisdiction extends to the all-India services, the Central civil services, civil posts under the Centre and civilian employees of defence services. However, the **members of the defence forces, officers and servants of the Supreme Court and the secretarial staff of the Parliament are not covered by it.**
- The CAT is a multi-member body consisting of a chairman and members. The members have been given the status of judges of High Courts. At present (2016), the sanctioned strength of the Chairman is one and sanctioned strength of the Members is 65. They are drawn from both judicial and administrative streams and are **appointed by the President.**
- The appointment of Members in CAT is made on the basis of **recommendations of a high powered selection committee chaired by a Sitting Judge of Supreme Court who is nominated by the Chief Justice of India.** After obtaining the concurrence of Chief Justice of India, appointments are made with the approval of Appointments Committee of the Cabinet (ACC).
- They hold office for a **term of five years or until they attain the age of 65 years**, in case of chairman and **62 years** in case of members, whichever is earlier.
- The CAT is **not bound by the procedure laid down in the Civil Procedure Code of 1908.** It is guided by the principles of natural justice.
- Originally, appeals against the orders of the CAT could be made only in the Supreme Court and not in the high courts. However, in the Chandra Kumar case (1997), the Supreme Court laid down that appeals against the orders of the CAT shall lie before the division bench of the concerned high court. Consequently, **now it is not possible for an aggrieved public servant to approach the Supreme Court directly against an order of the CAT,** without first going to the concerned high court.

2. The Saras Collection is an initiative of which of the following:

- | | |
|-----------------------------|-------------------------------------|
| a) Government e Marketplace | b) Deen Dayal Antyodaya Yojana-NRLM |
| c) Both 1 and 2 | d) Neither 1 nor 2 |

Answer: C

Explanation:

- The Union Ministry for Rural Development has launched “The Saras Collection” on the Government e Marketplace (GeM) portal.
- It is a unique initiative of GeM, Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM) and Ministry of Rural Development.

Provisions Under The Initiative

- 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.
- Under this initiative, the SHG sellers will be able to list their products in **5 product categories**, namely handicrafts, handloom and textiles, office accessories, grocery and pantry, and personal care and hygiene.
- GeM will provide dashboards for functionaries at the national, state, district and block level to provide them real time information about the number of products uploaded by SHGs, and value and volume of orders received and fulfilled.
- In addition, Government buyers shall be sensitized through system generated messages/ alerts in the Marketplace about availability of SHG products on the portal.
- GeM shall also collaborate with State functionaries to address the capacity building and training needs of SHGs, and build up their competencies required for order packaging, bid participation, catalogue management and logistics.
- By providing SHGs with direct access to Government buyers, the Saras Collection will do away with intermediaries in the supply chain, thus ensuring better prices for SHGs and spurring employment opportunities at the local level.

For GeM and DAY-NRLM, please refer The Recitals- July and August 2019 respectively.

3. Star Rating of Garbage Free Cities is an initiative of:

- | | |
|---|---|
| a) Ministry of Health and Family Welfare | b) Ministry of Housing and Urban Affairs |
| c) Ministry of Jal Shakti | d) None of the above |

Answer: B

Explanation

- The Ministry of Housing and Urban Affairs has released the Star Rating of Garbage Free Cities for the assessment year 2019-2020. A total of six cities have been certified as 5-Star (Ambikapur, Rajkot, Surat, Mysuru, Indore and Navi Mumbai), 65 cities as 3-Star and 70 cities as 1-Star.
- Five years ago, Swachh Survekshan (SS) – the annual cleanliness survey - was launched for urban India that has proven immensely successful when it comes to improving urban cleanliness through a spirit of healthy competition.
- However, since it is a ranking system, several cities, despite doing exceptionally well, were not being recognized appropriately, which led to the making of the protocol.

Details Of The Protocol

- The Star Rating Protocol was launched by the Ministry in 2018 to institutionalize a mechanism for cities to achieve Garbage Free status, and to motivate cities to achieve higher degrees of cleanliness.
- Cities are required to carry out self-assessment and self-verification for achieving a certain star rating. This self-declaration is further verified through an independent third-party agency appointed by MoHUA, to ensure transparency and standardisation.
- The star rating conditions are based on 25 key parameters across Solid Waste Management (SWM) such as cleanliness of drains & water bodies, plastic waste management, managing construction & demolition waste, etc. which are critical drivers for achieving garbage free cities.
- While the key thrust of this protocol is on SWM, it also takes care of ensuring certain minimum standards of sanitation through a set of prerequisites defined in the framework.
- This certification is not only an acknowledgement of the clean status of Urban Local Bodies and strengthened SWM systems but also a mark of trust and reliability akin to universally known standards.
- Moreover, the performance of cities under the Star Rating Protocol is crucial as it carries significant weightage when it comes to their final assessment in Swachh Survekshan.

4. The GOAL Programme is an initiative of:

- a) Facebook b) Ministry of Tribal Affairs
c) Both 1 and 2 d) Neither 1 nor 2

Answer: C

Explanation:

- Recently the Ministry of Tribal Affairs (MoTA) launched the “GOAL (Going Online As Leaders)” programme in partnership with Facebook. The programme is designed to provide mentorship to tribal youth through digital mode.
- Facebook had on its own run the project on pilot basis from February 2019 to October 2019 in 5 states with 100 mentees and 25 mentors.
- Based on its success, Facebook approached MoTA for a joint initiative under affirmative action and help Facebook in selection of mentees, design curriculum and various activities under the program.
- The program intends to upskill and empower 5,000 tribal youths in the current phase to harness the full potential of digital platforms and tools to learn new ways of doing business, explore and connect with domestic and international markets.
- The program will focus on **three core areas** – Digital Literacy, Life Skills and Leadership and Entrepreneurship, and on sectors such as Agriculture, Art & Culture, Handicrafts & Textiles, Health, Nutrition, among others.
- All the selected mentees will be provided with smartphones and Internet access (for one year) by Facebook along with exposure to various external forums that will give opportunity to the participants to showcase their entrepreneurial skills and leadership abilities.
- The program will also create awareness amongst tribal beneficiaries about various schemes initiated by Central and State Governments for welfare of STs as well as their fundamental duties.

7. Consider the following statements about Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):

1. AB-PMJAY provides a health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization.
2. Pre-existing diseases are not covered under AB-PMJAY.
3. The beneficiaries of AB-PMJAY scheme are identified using the Socio-Economic Caste Census (SECC 2011).

Which of the statements given above is/are correct?

- | | |
|-----------------|-----------------|
| a) Only 2 | b) Only 3 |
| c) 1 and 2 only | d) 1 and 3 only |

Answer: D

Explanation:

- The Covid pandemic and the lockdown have adversely affected people's access to medical care across the country, hindering even the Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana's (AB-PMJAY) ability to cater to critical patients below the poverty line.
- Cardiology treatments offered under AB-PMJAY declined 45%; General Surgeries plummeted 23% and procedures related to gynaecology and obstetrics nosedived 25% from February to April.
- The only category of treatment that showed an increase, and in fact accounted for the largest number of treatments and procedures offered overall was General Medicine.
- Due to the lockdown, private hospitals across the country were largely shut down, with the government itself encouraging people with non-critical illness to access hospitals via telemedicine, or to visit hospitals only for essential treatments (dialysis or non-elective surgeries) at hospitals.
- The idea was to keep hospitals — public and private — ready for a surge in COVID-19 patients as had been experienced in several European countries and the United States.
- However, with several reports of COVID-19 infections in healthcare workers and doctors across private and public hospitals, the number of visits to hospitals in general saw a decline, as evidenced by the PMJAY data.

AB-PMJAY

- The AB-PMJAY, offers health insurance to 10.74 crore poor, rural families and identified occupational categories of urban workers' families.
- The project offers an annual health cover of ₹5,00,000 per family (on a family floater basis). It covers medical and hospitalisation expenses for several secondary care and tertiary care procedures.
- The households included are based on the deprivation and occupational criteria of Socio-Economic Caste Census 2011 (SECC 2011) for rural and urban areas respectively.
- The Rashtriya Swasthya Bima Yojana had a family cap of five members. However, based on learnings from those schemes, AB-PMJAY has been designed in such a way that there is no cap on family size or age of members. In addition, pre-existing diseases are covered from the very first day.

8. Consider the following statements about Competition Commission of India (CCI)

Answer: A

Explanation:

- In a major initiative, the Union Ministry of MSME has launched the CHAMPIONS portal, a technology driven Control Room-Cum-Management Information System.
- The portal is a one stop shop solution which aims to convert smaller MSME units into big units by solving their grievances, encouraging, supporting, helping and handholding them to march into the big league as national and global Champions.

Objectives

- To help MSMEs in this difficult situation in terms of finance, raw materials, labour, permissions, etc.
- To help them capture new opportunities like manufacturing of medical accessories and products like Personal Protective Equipments (PPE), masks, etc.

CHAMPIONS Portal

- In addition to ICT tools, the system is enabled by Artificial Intelligence, Data Analytics and Machine Learning. It is also fully integrated on real time basis with government's main grievances portal CPGRAMS and MSME Ministry's own other web-based mechanisms.
- The entire ICT architecture is created in house with the help of NIC at no cost.
- As part of the system, a network of control rooms is created in a Hub & Spoke Model. The Hub is situated in New Delhi in the MSME office. The spokes will be in the States in various offices and institutions of Ministry.

Centralized Public Grievance Redress and Monitoring System (CPGRAMS)

- CPGRAMS is one of the flagship initiatives for the reformation in governance started by the government through addressing the grievances of general public. It was created in 2007 by the Department of Administrative Reforms & Public Grievances.
- Under the public grievance mechanism, any citizen of India can raise their problems, grievance or pleas to the central government and state government Ministries and Departments.
- The objective is speedy redressal and effective monitoring of grievances by Ministries/Departments/Organizations of the government.

10. Consider the following statements about Tea:

1. The first international tea day was celebrated in the year 2020.
2. Tea grows in areas of heavy rainfall and high humidity

Which of the statements given above is/are correct?

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

Answer: C

Explanation

- The first international tea day was recently celebrated on 21st May, based on a proposal moved by India at the **Food and Agriculture Organization Inter-Governmental Group (IGG) on Tea**.

- The Day will promote and foster collective actions to implement activities in favour of the sustainable production and consumption of tea.
- The FAO IGG on Tea is a forum for intergovernmental consultation and exchange on trends in production, consumption, trade and prices of tea, including regular appraisal of the global market situation and short-term outlook.
- Tea production and processing constitutes a main source of livelihood for millions of families in developing and least developed countries. Thus, it can play a significant role in rural development, poverty reduction and food security in these countries.
- China, Korea and Japan have 4 tea cultivation sites designated as **Globally Important Agricultural Heritage Systems (GIAHS)** by FAO. GIAHS sites represent evolving systems of human communities in an intricate relationship with their territory, cultural and agricultural landscape.

Climatic Conditions For Growing Tea

- Climate is a critical factor in determining both where the tea plant can be grown and the quality of tea grown in a particular area. However, the tea plant is adaptable and can be grown in a wide range of climatic conditions. It can thus grow from tropical climates to subtropical climates.
- It requires cool to warm temperatures with **at least 5 hours of sunlight per day**. The mean annual temperature during the growing season is between **18 and 21 Degree Celsius**.
- Tea needs **heavy rainfall in the form of frequent showers**, without extended freezing periods in the winter. Moreover, the rain should be well-distributed throughout the year because tea does not tolerate drought (or extended dry periods) well.
- Most commercially-managed tea operations are located on hill slopes in the highlands where drainage is good. **Waterlogged lowlands are less suited** for cultivating tea because tea cannot withstand stagnant water.
- The ideal **relative humidity during the growing season is 70% to 90%**. High humidity, morning fog, and heavy dew favor the growth of buds and young leaves. If the relative humidity during the growing season is below 40%, shoot growth is greatly inhibited.

11. Which of the following organizations are a part of the World Bank group?

- 1. International Development Association**
- 2. Multilateral Investment Guarantee Agency**
- 3. International Centre for Settlement of Investment Disputes**

Which of the statements given above is/are correct?

- | | |
|------------------------|---------------------------|
| a) 1 and 2 only | b) 2 and 3 only |
| c) 1 and 3 only | d) 1, 2 and 3 only |

Answer: D

Explanation:

- The World Bank has approved USD 1 billion for accelerating India's COVID-19 Social Protection Response Program to support the country's efforts for providing social assistance to the poor and vulnerable households. This takes the total commitment from the World Bank towards emergency

COVID-19 response in India to USD 2 billion. A USD 1 billion support was announced last month to support India's health sector.

- This new support will be funded in two phases – an immediate allocation of \$750 million for fiscal year 2020 and a \$250 million second tranche that will be made available for fiscal year 2021.
- Of the USD 1 billion commitment, USD 550 million will be financed by a credit from the International Development Association (IDA) – the World Bank's concessionary lending arm and USD 200 million will be a loan from the International Bank for Reconstruction and Development (IBRD), with a final maturity of 18.5 years including a grace period of five years
- The programme will support India's efforts towards a more consolidated delivery platform – accessible to both rural and urban populations across state boundaries.
- Geographic portability would be introduced to ensure that social protection benefits could be accessed from anywhere in the country, providing relief to inter-State migrant workers.
- There would also be a shift from the current rural focus of social protection schemes to include the needs of the urban poor as well.
- The platform draws on the country's existing architecture of safety nets – the PDS, the digital and banking infrastructure, and Aadhaar – while positioning the overall social protection system for the needs of a 21st century India.

World Bank

- The World Bank Group (WBG) is a family of five international organizations. It is the largest development bank in the world and is an observer at the United Nations Development Group.
- **Headquartered in Washington D.C.** in the United States, the bank's stated mission is to achieve the twin goals of ending extreme poverty and building shared prosperity.
- Its five organizations are the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC), the Multilateral Investment Guarantee Agency (MIGA) and the International Centre for Settlement of Investment Disputes (ICSID).

12. Consider the following statements about SARFAESI Act:

- 1. The SARFAESI Act allows banks and financial institutions to auction residential properties of a defaulter to recover loans.**
- 2. The provisions of SARFAESI Act are applicable to only commercial banks.**
- 3. The first asset reconstruction company (ARC) of India was set up under SARFAESI act.**

Which of the statements given above is/are correct?

- | | |
|-----------------|--------------------|
| a) 1 and 2 only | b) 2 and 3 only |
| c) 1 and 3 only | d) 1, 2 and 3 only |

Answer: C

Explanation:

- In a landmark judgment, a Supreme Court five-judge Constitution Bench ruled that **cooperative banks** can use the Securitisation and Reconstruction of Financial Assets and Enforcement of

Security Interest (SARFAESI) Act for recovery of debts from its defaulters and can seize and sell their assets to recover dues.

- According to an RBI report, there were 1,551 urban cooperative banks as on 31 March 2018, and 96,612 rural cooperative banks as on 31 March 2017, with the latter accounting for 65.8% of the total asset size of all cooperative banks.
- The recent crisis surrounding Punjab and Maharashtra Co-operative Bank Ltd and other such lenders exposed the vulnerability of cooperative banks, after the central bank superseded the lenders' boards after uncovering several irregularities.

SC Judgement

- The defaulters had argued that Sarfaesi Act, which is a central legislation, was not applicable to cooperative banks formed under state law, as there already was a mechanism for recovery under those state legislations.
- Also, the defaulters contended that the Act was applicable to a company engaged in banking, and not a cooperative society engaged in banking.
- The apex court rejected the stand of defaulters that Parliament lacks legislative competence to regulate financial assets related to the non-banking activity of a co-operative society.
- It further held that Parliament has legislative competence to provide additional procedures for recovery (of debts) under SARFAESI Act with respect to co-operative bank.
- As per the judgement, co-operative banks are involved in banking activities and they accept money from the public, repayable on demand. Merely by the fact that lending of money is limited to members, they cannot be said to be out of the purview of banking.
- The judgement also stated that cooperative banks were bound by the provisions of the Banking Regulation Act, 1949, and all the other legislation applicable to banks under the RBI Act. As a result, cooperative banks will have to comply with these rules.
- The judgment has remedied the “malady of inordinate delay” in recovery of dues through civil courts and cooperative tribunals. Through the judgement the apex court has put a judicial stamp on the quicker recovery of dues by these banks.

SARFAESI Act

- The SARFAESI Act, 2002 empowers banks/financial Institutions to recover their non-performing assets without the intervention of any court/tribunal and also ensures speedy recovery.
- The Act provides three alternative methods for recovery of non-performing assets, namely: Securitisation; Asset reconstruction and Enforcement of security without the intervention of the courts.
- It allowed the creation of asset reconstruction companies (ARC) and allowed banks to sell their non-performing assets to ARCs. The first asset reconstruction company (ARC) of India, ARCIL, was set up under this act.
- The law does not apply to unsecured loans, loans below ₹100,000 or where remaining debt is below 20% of the original principal.

13. Consider the following statements about Scheme for Formalisation of Micro food processing Enterprises (FME):

c) Both 1 and 2

d) Neither 1 nor 2

Answer: C

Explanation

- Aiming to connect farmers to the supply chain and freight transportation management system during the covid-19 lockdown, the **Central Road Research Institute (CRRI)** has launched the 'Kisan Sabha' app. The portal connects the farmers, transporters, service providers like pesticides, fertilizer, dealers, cold store and warehouse owners, mandi dealers, customers and other related entities for a timely and effective solution.
- It will act as a single-stop for every entity related to agriculture, be they a farmer who needs better price for the crops or mandi dealer who wants to connect to more farmers or truckers who invariably go empty from the mandis.
- The app will facilitate farmers to timely and economically deliver their products directly to the institutional buyers and increase their profit margins by minimising the interference of middlemen.
- It will also help in providing the best market rates of crops by comparing the nearest mandis, booking of freight vehicles at the cheapest cost thereby giving maximum benefit to the farmers.
- It will help the agriculture services sector such as dealers of fertilizers/pesticides, who can reach out to more farmers for their services.

Central Road Research Institute

- Central Road Research Institute was established in 1952 as a constituent laboratory of Council of Scientific and Industrial Research.
- It is the premier national research organization for highways traffic and transport planning and all other allied aspects.
- It conducts research and development in the areas of design, construction, maintenance and management of roads and airport runways. It also works in area of traffic and surface transportation planning.

15. Consider the following statements about Purandara Dasa:

1. Purandara Dasa is known as the father of Carnatic Music.
2. Purandara Dasa was a Shaiva poet.
3. Purandara Dasa has composed the Dasa Sahitya.

Which of the statements given above is/are correct?

a) Only 1

b) Only 3

c) 1 and 3 only

d) 2 and 3 only

Answer: C

Explanation:

- The Department of Archaeology, Heritage and Museums will soon commence field research work at Keshavapura in Araga, Karnataka, to explore definitive archaeological evidences that may put an end to speculations regarding the birthplace of Purandara Dasa

- As Purandara Vithala was the pen name of his compositions, it was widely believed that the mystic poet was born in Purandharagad, Maharashtra. However, many in Malnad (Karnataka) claim that he hailed from this region.

Purandara Dasa

- Purandara Dasa was, a renowned composer of Carnatic music, a devotee of Lord Krishna, a vaishnava poet, a saint and a social reformer. He was a disciple of the Dvaita philosopher-saint Vyasa-tirtha.
- Purandara Dasa was a wealthy merchant of gold, silver and other jewellery, who gave away all his material riches to become a Haridasa (literally meaning a servant of Lord Hari or Lord Krishna). Prior to his initiation to Haridasa tradition, he was called as Srinivasa Nayaka
- In honour of his significant contributions to Carnatic music, he is widely referred to as the **father of Carnatic music**.
- He was one of the most important music scholars of medieval India and formulated the basic lessons of teaching Carnatic music by structuring graded exercises known as Svaravalis and Alankaras. Purandara Dasa is also noted for composing Dasa Sahithya.

16. Consider the following statements about Toda Tribe:

1. **Toda tribe is an ethnic group that lives in Chattisgarh.**
2. **Earlier, Fraternal Polyandry used to be practiced in the Toda tribe.**
3. **The Toda lands have been declared a UNESCO World Heritage Site.**

Which of the statements given above is/are correct?

- | | |
|-----------------|--------------------|
| a) 1 and 2 only | b) 2 and 3 only |
| c) 1 and 3 only | d) 1, 2 and 3 only |

Answer: B

Explanation:

- More than a hundred women and indigenous Toda artisans from the Nilgiris are producing thousands of stylish, embroidered masks for local residents, police, and sanitary workers.
- As there are no tourists coming into the district, there is no demand at all for Toda embroidered quilts, shawls or other clothes. But because of the demand for masks, their skills are being put to use to get a livelihood in return.

Toda tribe

- Toda people are a Dravidian ethnic group who live in the Nilgiri Mountains of Tamil Nadu.
- The Toda traditionally live in settlements called **mund**, consisting of three to seven small thatched houses, constructed in the shape of half-barrels.
- Fraternal polyandry in traditional Toda society was fairly common; however, this practice has now been totally abandoned, as has female infanticide.
- Since the early 21st century, Toda society and culture have been the focus of an international effort at culturally sensitive environmental restoration.
- The Toda lands are now a part of The Nilgiri Biosphere Reserve, a UNESCO-designated International Biosphere Reserve and their territory is declared UNESCO World Heritage Site.

- 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 artists dip the clay structure in a mixture of soda and mango tree barks and bake it.
- Some of the major products of craftsmanship include the Hauda elephants, Mahawatdar horse, deer, camel, five-faced Ganesha, singled-faced Ganesha, elephant table, chandeliers, hanging bells etc.

18. Vande Bharat Mission is related to

- a) Bring stranded Indians home from foreign lands**
- b) Increase nationalism and patriotism among youths of India**
- c) Showcase National heritage to the world**
- d) None of the above**

Answer: A

Explanation

- The mission was started by the Indian government on May 7 to bring **stranded Indians home** amid the COVID-19 pandemic **from foreign land on a payment basis**.
- It also permitted foreign nationals and valid visa holders to book seats on these outbound flights.

19. Recently, India has launched Mission Sagar. It is related to -

- a) Bringing stranded Indians home from neighbouring island nations**
- b) To assist island nations in the Eastern Indian Ocean**
- c) Naval exercise between India and Mauritius**
- d) Strengthening Coastal Security**

Answer: B

Explanation

- India launched **Mission Sagar** as part of the **government's outreach initiative towards five Island nations in the Indian Ocean** amidst the ongoing COVID-19 pandemic.
- Five Island Nations are - **Maldives, Mauritius, Seychelles, Madagascar and Comoros**
- Under the mission, India will provide food Items, COVID related Medicines including HCQ Tablets and Special Ayurvedic Medicines with Medical Assistance Teams to these nations.
- This deployment as 'Mission Sagar' is in line with **India's role as the first responder in the region**.
- It is also in consonance with the vision of **Security and Growth for All in the Region 'SAGAR'** promulgated in March 2015.

20. Who among the following personalities has been appointed as a US representative to the Organization for Economic Cooperation and Development (OECD)?

- UNRWA's members are Belgium, Egypt, France, Japan, Jordan, Lebanon, Syria, Turkey, the United Kingdom, and the United States; the **Palestine Liberation Organization (PLO) has observer status.**

22. Which of the following country decided to change its national currency from the Rial to the Toman?

- a) Iran
- b) Saudi Arabia
- c) Oman
- d) None of the above

Answer: A

Explanation

Iran's parliament has approved a bill thereby bringing certain changes to its national currency. These changes have been brought following a **sharp drop** in the value of the Iranian rial **as a result of crippling US sanctions on the country.**

Changes

- Iran's national currency will be changed from the **rial to the Toman.**
- The bill also removes four zeros from the national currency. That means, now one Toman will be equal to 10,000 rials.

Why The Changes

- The withdrawal of the Trump administration from the 2015 Iran nuclear deal and the imposition of US sanctions caused the **Iranian rial to lose more than 60% of its value.**
- The inflation rate in Iran, during the 12-month period ending March 20, stood at 34.8 percent.
- According to currency exchange rate of Central Bank of Iran, **\$1 was equal to 42,000 Iranian rials** on May 4, while Iranian currency was trading at about 156,000 rials per dollar on unofficial market.

Four Major Events Which Saw The Devaluation Of Iranian Currency So Far

- **The Islamic Revolution of 1979** - when the government of the Western-allied Shah collapsed
- **The end of the Iran-Iraq war in 1989** (took Iran almost eight years to rebuild its shattered economy)
- **During the last years of hard-line President Mahmoud Ahmadinejad's tenure** - Rial lost almost 400% more of its value on global currency markets due to international sanctions.
- **President Donald Trump pulled the U.S. out of the nuclear deal**

23. Consider the following statements regarding the European Court of Justice (ECJ):

1. It is a Luxembourg-based court which ensures that EU law is interpreted and applied the same in every EU country.
2. It only settles legal disputes between member national governments and EU institutions.
3. ECJ can perform a judicial review of EU law.

Which of the above statements is/are Correct?

- a) 1 and 2 Only
- b) 1 and 3 Only
- c) 2 and 3 Only
- d) 1, 2 and 3

Answer: B

Explanation

Germany's constitutional court has **questioned the legality of a past ruling of the European Court of Justice**. This has sent shockwaves through the European community as it challenged the **long-settled hierarchy of European Union (EU) judiciary**.

Background

- Aimed at **reinvigorating the EU economy**, the **European Central Bank (ECB) had launched a EUR 2 trillion bond-buying scheme**.
- In 2018, the ECJ had **ruled in favour of this scheme** stating that it was legal as per EU law.
- Recently, the constitutional court of Germany ruled that the **ECJ's 2018 ruling was "ultra vires"**.

About the Scheme

- The ECB, led by Christine Lagarde, **started purchasing governments bonds** in 2015 in an effort to support economic growth in the euro area.
- This stimulus program ended in 2018, but was restarted in late 2019 as economic indicators remained weak.

What Did The German Court Say

- The court criticised 2018 ECJ judgement for failing to give consideration to the importance and scope of the **principle of proportionality**.
- The German judges claimed that the **ECB exceeded its remit** and dismissed an ECJ ruling from 2018 that backed the programme.
- They also insisted that it **was "not bound" by the EU court's decision**.
- The German court has now given the ECB three months to prove that the bond-buying scheme was proportionate as per the EU's actual needs.

Stand of European Court of Justice on this matter:

- ECJ has said that it is the only legal body able to **determine if an EU institution violated bloc law**.
- The Luxembourg-based body recalled that "a judgment in which the Court gives a **preliminary ruling is binding on the national court**".

Significance Of This Verdict

- **Supremacy of the ECJ under scanner** – Issues such as the **primacy of the EU law**, and the fact that the rulings of the **ECJ are binding on all national courts** have come under scanner.
- **Stability of the euro zone** – The ruling has led to new questions about the future of the euro zone. It has shaken the **foundations of both the eurozone's monetary policy and the EU's legal order**.
- The ruling has **exposed the fault lines within EU**. For example, the Polish government had said earlier that the EU cannot overstep its competences and it welcomed the German verdict.

About ECJ

- Located in **Luxembourg**, the ECJ oversees the correct application and implementation of EU law.
- It was founded in **1952** after the Treaty of Paris.

- The court is divided into two: the **Court of Justice and the General Court**. The Court of Justice has one judge from each Member State.
- In terms of hierarchy, the **national courts of member countries are understood to be below the ECJ in matters of EU law**.

Cases Which ECJ Can Take

- The ECJ can hear cases from the **national courts through the 'preliminary ruling' system**. This involves a national court referring a question on the interpretation of EU law to the ECJ.
- The ECJ decides the correct interpretation and sends the case back to the national court for a final decision. It is **still up to the national court to decide issues of its own nation's laws**.
- It can also settle the legal disputes between **EU institutions and member states** as well as **issues involving member states**.
- The court can **perform a judicial review of EU law**. This means it has the power to review EU regulations and directives and make sure they comply with EU treaties and general principles of law.

24. Which of the following countries is not included in Baltic States?

- a) Estonia
- b) Latvia
- c) Denmark
- d) Lithuania

Answer: C

Explanation

- The **Baltic countries of Estonia, Latvia and Lithuania** have opened their borders to one another, creating a **coronavirus "travel bubble"**.
- Now citizens and residents can move freely between the three EU nations. This step has been taken in order to **help put their economies back on track post-Covid lockdowns**.

What Is A Travel Bubble

- It involves **reconnecting countries or states that have shown a good level of success** in containing the pandemic domestically.
- Such a bubble would allow the members of the group to **rekindle trade ties** with each other, and **kickstart sectors such as travel and tourism**.

Where Are Other Such Bubbles Expected To Start?

- Australia and New Zealand reached an agreement to form a travel bubble between the two countries once it becomes safe to operate flights between them.
- China and South Korea have launched a fast track channel for business travellers.

Baltic Region & Baltic States

- The countries that have shorelines along the Baltic Sea: Denmark, Estonia, Latvia, Finland, Germany, Lithuania, Poland, Russia, and Sweden.
- The group of countries presently referred to by the shorthand Baltic states: **Estonia, Latvia, and Lithuania**.

25. Hanko, often seen in news, is a century old practice of which of the following country?

- a) Vietnam
- b) China
- c) Japan
- d) Cambodia

Answer: C

Explanation

In Japan, a **centuries-old ritual “Hanko”** is sharing the blame for impeding social distancing efforts.

What Is A Hanko

- The hanko is a **personal stamp that is equivalent to a signature** in other countries, and is an essential part of several transactions. Small-sized and circular or square-shaped.
- The stamp is wet by an ink pad called ‘shuniku’, and the mark that it leaves on a document is called ‘inkan’.
- The use of the traditional seal can be traced back to almost two millennia, when an **emperor from China’s Han dynasty gave a solid gold stamp** to an envoy from Japan in the year 57 AD.

Why The Use Of Hanko Is Criticised

- In response to the novel coronavirus pandemic, Japan has been aggressively promoting a work-from-home policy.
- Yet, the centuries-old practice is causing employees to go to their workplace, as **companies prefer to keep their registered seals at the office premises** for security reasons.
- Many are thus having to take packed trains to work, chiefly for stamping-related work.

26. Consider the following statements regarding G-20:

1. **G-20, is a group of finance ministers and central bank governors from 20 individual countries.**
2. **Russia is no longer a member of G-20.**

Which of the above statements is/are Correct?

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: D

Explanation

- The trade and investment ministers of the G20 countries participated in the **Second G20 Virtual Trade and Investment Ministers Meet.**
- It was hosted by the **current chair of G20 grouping, Saudi Arabia.**
- It was called to discuss ways to minimize disruption to trade and global supply chains which have been affected by the COVID-19 pandemic.

Key Highlights

- India was represented by the Union Commerce Minister Piyush Goyal.

- India has asked other members to work on an agreement that would enable countries to use the flexibilities provided in the existing global intellectual property pact.
- This would ensure access to essential medicines, treatments and vaccines at affordable prices to fight the Covid-19 pandemic.
- On food security, India urged the member to build a consensus so as to eliminate the historic asymmetries in the Agreement on Agriculture.
- It also asked the member nations to **deliver on the long-standing Ministerial mandate to establish permanent, adequate and accessible disciplines** on public stockholding for food security purposes by the next Ministerial Conference of the World Trade Organisation.

About G-20

- G-20, is a group of finance ministers and central bank governors from **19 individual countries and European Union**.
- G-20 is a forum, not a legislative body, its agreements and decisions have no legal impact, but they do influence countries' policies and global cooperation.
- Established in 1999, G20 was elevated from a forum of Finance Ministers and Central Bank Governors **to that of Heads of State/Government** in 2008 **to effectively respond to the global financial crisis of 2008**.
- **Members include** - Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, **Russia**, Saudi Arabia, South Africa, Turkey, United Kingdom, United States and the European Union.

[For detailed discussion on the usefulness of G-20, please refer Mains Q&A section from September 2019 issue of CA magazine]

27. Consider the following statements regarding the Commonwealth of Nations:

1. It is a voluntary association of 54 independent and equal countries.
2. Some members of the organization were never part of the British Empire.
3. Its secretariat is situated at Australia.

Which of the above statements is/are Correct?

- | | |
|-----------------|-----------------|
| a) 1 and 2 Only | b) 2 and 3 Only |
| c) 1 and 3 Only | d) 1, 2 and 3 |

Answer: A

Explanation

- The **32nd Commonwealth Health Ministers' Meeting** was held through Video Conference.
- **Theme** - Delivering a co-ordinated Commonwealth COVID-19 response.
- India was represented by Union Health Minister Dr. Harsh Vardhan.

About The Meeting

- Health and human development have been priority areas for Commonwealth governments **since 1965**, when **Ministers first met in Edinburgh for the inaugural Commonwealth Health Ministers Meeting (CHMM)**

- It is held **every year in Geneva**. It provides a platform for countries to bring issues of health to the attention of their Commonwealth partners and peers.

About the Commonwealth Nations:

- The Commonwealth is a voluntary association of **54 independent and equal countries**.
- Secretariat – London, UK (established in 1965)
- **Some members were never part of the British Empire. Rwanda and Mozambique became members in 2009 and 1995** respectively, and neither has a British colonial past or constitutional link.
- The insignia of this Commonwealth Association is **Queen Elizabeth II** (she is also the symbolic head of the organization) who is considered the Supreme of the Commonwealth nations.
- The member states of the commonwealth are **not legally liable or bound to each other**.

28. Consider the following statements regarding the International Health Regulations (IHR):

1. It represents an agreement between all WHO Member States to work together for global health security.
2. IHR is not a legally binding instrument.

Which of the above statements is/are Correct?

- | | |
|-----------------|--------------------|
| a) 1 Only | b) 2 Only |
| c) Both 1 and 2 | d) Neither 1 nor 2 |

Answer: A

Explanation

- Due to the COVID-19 pandemic, the **73rd World Health Assembly (WHA)** —its first-ever to be held virtually— met with a reduced agenda to fit into two days.
- It was held 18-19 May 2020 and will reconvene later in the year.
- WHA is the **decision-making body of WHO**. It is attended by delegations from all WHO Member States and focuses on a specific health agenda prepared by the Executive Board.

Key Highlights

- The Assembly unanimously adopted a resolution to **conduct an independent probe** into the World Health Organization's COVID-19 response.
- India was among 58 nations, including 27 European Union members, who had moved the draft resolution.
- The draft resolution demands
 - The actions of the WHO and
 - Their timelines pertaining to the COVID-19 pandemic
 - Reviewing of functioning of the **International Health Regulation (IHR)**
- Timelines are to be evaluated regarding recommendations the WHO made to improve global pandemic prevention, preparedness, and response capacity.

- The resolution also asks stakeholders to coordinate with WHO and other multilateral organisations to **concentrate efforts on finding the zoonotic source of the virus.**

About IHR

- IHR represents an **agreement between 196 countries including all WHO Member States** to work together for global health security.
- It was published in 2005. It is a **legally binding instrument of international law** that aims to a) assist countries to work together to save lives and livelihoods endangered by the international spread of diseases and other health risks and b) avoid unnecessary interference with international trade and travel.

29. Who among the following has been appointed as Chairman of WHO Executive Board for 2020?

- a) Dr Hiroki Nakatani
- b) Dr Harsh Vardhan
- c) Dr Chandra Mani
- d) Dr Soumya Swaminathan

Answer: B

Explanation

Union Health Minister Dr Harsh Vardhan took over as chairman of the WHO Executive Board. He succeeded Dr Hiroki Nakatani, the adviser for international affairs to Japan's Health Minister. As a Chairman of the board, Dr Harsh Vardhan will contribute shortlisting the next Director General of the WHO, once current chief Tedros Adhanom's term ends in 2021.

About Executive Board of WHO

- The **34-member Executive Board** is one of the two of the WHO's primary decision making bodies, other being the World Health Assembly.
- Each member, qualified in the field of health, is appointed to the body for a **period of three years.**
- The Board **chairman's post** is held **by rotation for one year** by each of the WHO's six regional groups.
- The **six regional groups are:** African Region, Region of the Americas, South-East Asia Region, European Region, Eastern Mediterranean Region, and Western Pacific Region.
- The executive board and the world health assembly work together to address the concerns of member states and create a forum for debate.
- The **annual Board meeting is held in January** when the members agree upon the agenda for the World Health Assembly and the resolutions to be considered by the Health Assembly.
- A **second shorter meeting takes place in May**, as a follow-up to the Health Assembly.

India & WHO

- India became a party to the WHO constitution in January 1948. India is a **member state of the South East Asia Region** at the WHO.
- The **first regional director for South East Asia** was an Indian, Dr Chandra Mani, who served between 1948-1968. Currently, the post has again been occupied by an **Indian appointee, Dr Poonam Khetrapal Singh**, who has been in office since 2014.
- Dr **Soumya Swaminathan** has been serving as **WHO's chief scientist since 2019.**

- The recommendations accepted were **aimed at speeding up road construction** in remote areas, providing easier access to the military and leading to socio economic development in the border areas.
- Earlier, in May 2020, based on the recommendation of this committee, MoD approved the **abolition of 9,304 posts in the Military Engineering Service**.

Accepted Recommendations Related to Border Infrastructure

- To outsource road construction work beyond optimal capacity of Border Roads Organisation (BRO)
 - It will bring in private sector road construction agencies, which will free up load of BRO.
 - To ensure oversight, the government has made it mandatory to **adhere to the Engineering Procurement Contract (EPC)** for executing all projects that cost more than Rs 100 crore.
- Make it easier to introduce modern construction plant, equipment and machinery.
 - For this, the BRO's "**enhanced procurement powers**" for domestic and foreign procurements from **have been increased from Rs 7.5 crore to Rs 100 crore**.
 - The BRO is also **introducing advanced new technologies** to speed up construction, such as precision blasting, use of geo-textiles for soil stabilisation, using cementitious base for pavements and plastic coated aggregates for surfacing.
- Completing land acquisition and obtaining statutory clearances such as forest and environmental clearance will now be pre-requisites for approving the Detailed Project Report (DPR) for a new road. Work can be awarded only after at least 90 per cent of the statutory clearances have been obtained.

Other Recommendations of Committee

- India's **defence budget** should be in the **range of 2.5 to 3 % of the GDP**.
- The establishment of a **Joint Services War College** for training for middle-level officers.
- The Military Intelligence School at Pune be converted to a tri-service intelligence training establishment.
- It also called for the closure of military farms and army postal establishments in peace locations.

35. Which of the following States has become the first state to implement "FIR Aapke Dwar" scheme?

- a) Rajasthan
- b) Madhya Pradesh
- c) Odisha
- d) Bihar

Answer: B

Explanation

- Madhya Pradesh government has launched 'FIR Aapke Dwar' (FIR at doorstep) Yojana.
- MP has become the first state in the country to launch such an innovative scheme.
- Now people will not be required to visit the police station to lodge their complaints.
- The trained head constables in the First Response Vehicle (FRV), which is GPS fitted for attending the emergency calls (dial 100), will be able to file the FIR on spot.

COVID-19 Technology Access Pool

- **WHO and Costa Rica** launched the landmark **COVID-19 Technology Access Pool**.
- **Thirty countries and multiple international partners** and institutions have signed up to support the COVID-19 Technology Access Pool (C-TAP) an initiative aimed at making vaccines, tests, treatments and other health technologies to fight COVID-19 accessible to all.
- It will be **voluntary** and **based on social solidarity**. It will provide a **one-stop shop** for scientific knowledge, data and intellectual property to be shared equitably by the global community.
- With supportive countries, C-TAP will serve as a **sister initiative to the Access to COVID-19 Tools (ACT) Accelerator** and other initiatives to support efforts to fight COVID-19 worldwide.

AROGYA SETU

- The source code of Aarogya Setu App has now been made open source. Opening of the source code up to the developer community signifies Gol's commitment to **Transparency Principle**.
- **Source code** is the part of **software** that computer programmers can **manipulate** its **working** and **function**. Programmers who have access to a computer program's source code can **improve** that program by adding features.
- The government has also launched a **Bug Bounty programme** wherein financial rewards will be given to security researchers for finding any vulnerability in the application or suggesting improvements to the source code.

FAITH Trials

- With the number of COVID-19 patients rising in India, **Glenmark Pharmaceuticals Ltd.**, has announced a new randomised, open-label study to test the combined efficacy of **two antiviral drugs — Favipiravir and Umifenovir** — as a potential COVID-19 treatment strategy.
- The new combination clinical trial will be called **FAITH – (FA vipiravir plus Um I fenovir (efficacy and safety) Trial** in Indian **Hospital setting**).

43. Acharya Jagadish Chandra Bose Indian Botanic Garden recently in news is located in which among the following states?

- (a) Kerala
- (c) Tamil Nadu
- (b) West Bengal
- (d) Telangana

Answer: B

Explanation:

- Cyclone Amphan has caused massive damage to the trees in the Acharya Jagadish Chandra Bose Indian Botanic Garden located in Howrah district, **West Bengal**.
- The garden was also known as Calcutta Botanical Garden, Indian Botanic Garden, and Royal Botanic Garden. It was founded in the year 1787 **by Colonel Robert Kyd, an officer with the British East India Company** for the purpose of cash in on the commercial value of the plants and grow spices of commercial value.
- The **250-year-old 'Great Banyan Tree'** remains the prime attraction of the garden. It is the **biggest banyan tree in the world** and forms the second largest canopy.
- Apart from being a home to 12,000 perennial plants of 1,400 species, the garden is the major centre of horticultural and botanical research in India. It is **mainly governed by Botanical Survey of India** of Ministry of Environment and Forests, Gol.

Bridging The Gaps

Jammu and Kashmir Grant of Domicile Certificate (Procedure) Rules, 2020

The Jammu and Kashmir administration issued a notification defining the rules for issuing domicile certificates in the Union territory.

New Rules

- The domicile certificate has been made the **basic eligibility criteria for appointment to any post** under the Union Territory following amendments in the Jammu and Kashmir Civil Services (decentralization).
- The certificate will be issued by the designated authority which in all cases are tehsildars or other officials that may be notified by the government.
- **15 days will be required for issuance of the domicile certificate.** If the certificate is not issued within the stipulated time, the applicant shall be free to approach an appellate authority, who can levy a **penalty of Rs 50,000** on the competent authority”.

Eligibility Conditions

- People belonging to **West Pakistan, Valmiki, women marrying outside communities, non-registered Kashmiri migrants, displaced people** will be eligible to get domicile.
- **All those holding the permanent resident certificates of the erstwhile J&K state** will be eligible to get the domicile certificates.
- **Any person who is registered as a migrant** by the Relief and Rehabilitation Commissioner (Migrants) in the UT of J&K shall be eligible to be treated as a domicile. Other bonafide persons, displaced persons or migrants and their descendants who are not registered with the Relief and Rehabilitation Commissioner (Migrants) in the UT of Jammu and Kashmir and may have been left out for several reasons can also get a domicile certificate.
- It has made Relief and Rehabilitation Commissioner (Migrant) the competent authority for the purpose of registration of displaced persons besides Kashmiri migrants for the purpose of issuance of domicile certificate.
- All those persons and their children **who have resided for 15 years in Jammu and Kashmir or have studied for seven years and appeared in class 10 or 12 examination** in an educational institution in the UT are eligible for domicile.

- **Children of central government officials, all India service officers**, officials of PSUs and autonomous body of the central government, public sector banks, officials of statutory bodies, officials of central universities and recognised research institutes of the central government, who have served in Jammu of Kashmir for a total period of 10 years will also be eligible for domicile.
- **Children of those residents of Jammu and Kashmir** who stayed outside the UT due to their employment or other professional reasons will also be eligible for domicile.

Few Points To Introspect

- The new law is a major departure from the earlier position of law, under Article 35A of the Indian constitution and Section 6 of J&K constitution that empowered the J&K assembly to define a permanent resident of Jammu & Kashmir. A permanent resident has now been replaced with “domicile” with retrospective effect.
- For non-Kashmiris, it has been made easy to get domicile certificate. They just need a mere ration card or a document of proof of residence and they can even apply for and receive the certificate electronically. On the other hand, a Kashmiri must produce Permanent Residence Certificate which used to be issued by DC. To get a PRC, one needed to submit an affidavit and a host of documents which would take months to prepare. So, critics say that this circular exercise appears to be a verification of domiciled people of Jammu & Kashmir similar to an NRC exercise for JK.
- PRC has already been held by courts to be a conclusive proof of residence but effectively through this new law, a constitutionally recognised PRC can now serve only evidentiary value and by itself is not a conclusive proof of residence. This begs the question of why there is any requirement of people who are already residents of J&K to prove their residence again?
- The new rules have empowered a tehsildar to issue such certificate in most cases and Relief and Rehabilitation Commissioner in the case of migrants. Previously such domicile certificates were issued by officers of the level of Deputy Commissioners and it involved passing through a labyrinth of procedures and shuffling back and forth between many offices. In that sense, it is feared, the new rules are intended to bypass the byzantine bureaucracy and offer an accelerated path towards acquiring the domicile for non-locals.
- In case the issuing authority fails, the appellate authority is entitled to “recover an amount of Rs 50,000 from the salary of competent authority.” This clause seems a pre-emptive move to undercut any resistance from Kashmiri officials.

The new changes, thus, present not only a serious challenge to the demography of the former state but also significantly expand access to state resources.

UMANG App

To further enhance the initiatives of Digital India Programme, Ministry of Electronics and Information Technology (MeitY) has brought the India Meteorological Department (IMD) services on the “UMANG App”(Unified Mobile Application for New-age Governance).

About UMANG App

- Launched in November 2017, the UMANG mobile app is one of the key **initiatives under the Digital India program** to develop a common, unified platform and mobile app to facilitate a **single point of access to all government services**.
- It is envisaged to act as a master application, which will **integrate major government services from various sectors** such as Agriculture, Education, Health, and Housing among others.
- The application will enable users to access e-Government services of the central Government, the State Governments, local bodies and their agencies.

- Currently about 660 services from 127 departments & 25 states and about 180 utility bill payment services are live. Some of the services offered are AADHAR, DigiLocker, Bharat Bill Payment System, PAN, EPFO, birth certificates, e-District and passport.
- It is developed by **MeitY & National e-governance Division (NEGD)** to drive Mobile Governance in India.

Darbar Move

This is for the first time in 148 years that the Jammu and Kashmir government has 'halted' the traditional administrative tradition of Darbar Move. It cited Coronavirus pandemic as a reason to halt the Move.

What Is It

- It is a century-old practice in which the **government functions for six months each in the two capitals of the State - Srinagar and Jammu**. The government will function in Srinagar, the summer capital of the State, till late October and then move to Jammu, the winter capital, in the first week of November.
- The practice was reportedly started in the late 19th century by Ranbir Singh, the Maharaja of Jammu and Kashmir, who used to shift his capital between Srinagar and Jammu to **escape extreme weather conditions** in these places.
- Security measures and other arrangements have been made to ensure smooth functioning of the offices in Kashmir Valley, which has witnessed a spurt in militant activities in the last few months.

Criticism Of Darbar Move

- Given the **modern weather control mechanisms**, the consideration of extremities of weather, which was the case, reason and basis for the Darbar Move, does not hold weight today.
- **The valuable documents and resources** of the Union Territory in the nature of important and sensitive government documents are **put to tremendous risk in the process of their transportation** as they are packed in trunks and carried in hired trucks over a distance of 300 km between Jammu and Srinagar and vice-versa twice a year.
- Darbar Move results in **wastage of tremendous amount of time and energy** on inefficient and unnecessary activities (like packing of records). It nurtures inefficiency and leads to lack of governance.
- Both the Jammu as well as the Srinagar regions equally require administration and governance round the year without interruption. It is **unfair and opposed to public interest to deprive either region completely of access to government machinery for six months** at a time.
- Government has an **annual expenditure of at least Rs 200 crores** (as disclosed and many more hundreds of crores of rupees of undisclosed costs) for shifting of its capital two times a year. There is no information at all about the cost incurred on the security forces and the police utilised for ensuring the move.
- It is not acceptable in a hopelessly **fiscally deprived UT with severe underdevelopment** and people deprived of bare basics which are essential part of their fundamental right of life guaranteed under Article 21 of the Constitution of India.

The Darbar move requires to be rationalised by minimising the movement of employees and physical assets. If this practice was rationalised, the amount of money, resources and time which could be saved, could be utilised towards the welfare and development of the Union Territory, which has otherwise witnessed much turmoil. It could be utilised for protection and propagation of culture and heritage of the communities.

Azaan

- The Allahabad High Court recently allowed azaan in three districts of Uttar Pradesh, where it had been stopped by the district administration citing the Home Ministry's lockdown rules.
- Azaan is a Muslim call to ritual prayer made by a muezzin from the minaret of a mosque (or now often played from a recording) at prescribed times of the day.

New Ruling

- The Court has held that azaan can be recited by a muezzin from minarets of the mosques **by human voice only without using any amplifying device or loudspeakers**. Such recitation by human voice cannot be hindered under the pretext of violation of the guidelines issued by the state government to contain the spread of coronavirus.
- Azaan may be an essential and integral part of Islam but its **recitation through loud speakers or other sound-amplifying devices cannot be said to be an integral part of the religion warranting protection of the fundamental right enshrined under Article 25**, which is even otherwise subject to public order, morality or health and to other provisions in part III of the Constitution.
- **It cannot be said that a citizen should be coerced to hear anything which he does not like** or which he does not require since it amounts to taking away the fundamental right of other persons.
- **One can't use a loudspeaker for azaan without prior permission** of district administration in accordance with the law.

Collective Conscience Of Society

The **shock and impact of a crime on the collective conscience of society** was a major reason cited by trial courts while imposing death sentence on convicts, according to a report by research organization 'Project 39A, of National Law University, Delhi. Collective conscience is defined as **"the totality of beliefs and sentiments common to average citizens of the same society."**

Findings Of The Study

- The report, titled '**Death Penalty Sentencing in Trial Courts**', analysed 215 judgments from three states - 43 from Delhi, 90 from Maharashtra and 82 from Madhya Pradesh, in which trial courts imposed death sentence between 2000 and 2015.
- Out of the 43 cases in Delhi in which death sentence was handed down between 2000 and 2015, **trial courts invoked the impact of the crime on society's collective conscience in 31 cases (72%) as grounds to send convicts to death row**. In Madhya Pradesh, the said ground was used in 43% cases (35 out of 82) while in Maharashtra the figure stood at 51% (46 of 90 cases).
- The study revealed blatant **non-compliance by the trial courts with the sentencing framework, to be followed for imposing death penalty, laid down by the Supreme Court** in its 1980 judgment in **Bachan Singh v. State of Punjab**.
- The sentencing framework required the weighing of **aggravating and mitigating circumstances relating to both the circumstances of the offence and the offender**, to decide whether a person should be sentenced to death or given life imprisonment. According to the Bachan Singh judgement, for a case to be eligible for the death sentence, the **aggravating circumstances must outweigh the mitigating circumstances**.

Supreme Court Invoking Collective Conscience To Award Death Penalty

- 'Collective conscience of society' as a ground to justify death penalty was **first used by the Supreme Court in the 1983 judgment of Machhi Singh v. State of Punjab**. In that case, the

court held that when “collective conscience of society is shocked, it will expect the holders of the judicial power centre to inflict death penalty”.

- It was, however, most famously used by the top court in its 2005 judgment in the **Parliament attack case** in which it awarded capital punishment to convict Afzal Guru.
- Collective conscience found its most recent endorsement in the 2017 judgment of the Supreme Court in the **2012 Delhi gang rape case of Mukesh v. State of NCT of Delhi**.

Issues Associated With Trial Court’s Imposition Of Death Sentence

- **Non-consideration of mitigating factors while sentencing accused:** As per the report, no mitigating circumstances were mentioned in 42% of death penalty cases in Delhi. The number was 62% in Madhya Pradesh and 47% in Maharashtra.
- **Age of the accused:** The Bachan Singh judgement recognized the age of the accused as a relevant mitigating circumstance. But 37% of the prisoners sentenced to death in the three states were between 18-25 years of age.
- **Alternative punishment:** Most important aspects of the sentencing framework laid down in the Bachan Singh judgement is to consider whether the alternative punishment of life imprisonment can be “**unquestionably foreclosed.**” Only then can death penalty be imposed. Despite this, trial courts in the three states discussed life imprisonment as an alternative **only in 26.6% cases before imposing death penalty.**
- **Sentencing on the same day as the conviction:** In a total of 211 out of the 215 cases across the three states, 44% cases saw sentencing on the same day as the conviction. This, the study said, has an obvious impact on the nature and quality of arguments that were presented before the court.
- **Individual role in Crime:** The report highlighted how trial courts failed to consider individual roles of the accused in the crime when sentencing an accused in a case involving more than one convict. In Maharashtra, in the 23 cases out of 90 that involved more than one person sentenced to death, individual roles in crimes and individual mitigating circumstances were considered during sentencing in 16 and 4 cases respectively.

This study shows that the death penalty sentencing framework has completely collapsed. The utter inconsistency, confusion and arbitrariness in the Supreme Court’s death penalty jurisprudence has had a devastating impact on the sentencing process in the trial courts. There is barely anything common between the law laid down by a 5-judge bench in Bachan Singh and what passes for sentencing hearings in our courts.

Stringency Index

- The Stringency Index has found that **India had one of the strongest lockdown measures in the world** — at a 100 score since March 22.
- Stringency Index is created by **Oxford University**, which shows how strict a country’s measures were, and at what stage of the spread of Covid-19, it enforced these.
- The Stringency Index is a number from 0 to 100 that reflects these indicators. A higher index score indicates a higher level of stringency.
- The researchers examined if countries meet four of the six World Health Organization’s (WHO) recommendations for relaxing physical distancing measures. These 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; and community engagement.

- Oxford found **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.

One Nation, One Ration Card

Finance Minister announced the national rollout of a 'One Nation, One Ration Card' system in all states and Union Territories by March 2021. As of now, about 20 states have come on board to implement the inter-state ration card portability.

Please refer 'The Recitals' - September 2019 for need, benefits, challenges associated with one nation, one ration card scheme

Prime Minister's Research Fellowship scheme

The Ministry of Human Resource and Development recently carried out amendments in Prime Minister's Research Fellowship Scheme, to boost research in the country.

Amendments

- Post the amendments, students from any recognised institute/university can apply for the PMRF scheme. Prior to this amendment, only students from IISc/ IITs/NITs/IISERs/IIEST could apply for the fellowship. Furthermore the requirement of the GATE score has also been reduced to 650 from 750.
- From now on, there will be two channels of entries, one direct entry and lateral entry. In lateral entry, the students, who are pursuing PhD in PMRF granting institutions who have completed 12 months or 24 months as per certain requirements, can also apply to become fellow under the scheme.
- Furthermore, NITs, which appear in top 25 institutions as per NIRF Ranking can also become PMRF Granting institution.
- Moreover, to boost research a dedicated Division is being created in the ministry 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.

PMRF

- The Prime Minister's Research Fellowship (PMRF) scheme is aimed at attracting the talent pool of the country to doctoral (Ph.D.) programs for carrying out research in cutting edge science and technology domains, with focus on national priorities, thereby realizing the vision of development through innovation.
- The Government approved the scheme at a total cost of Rs.1650 crore for a period of seven years in 2018-19.
- Such students are offered 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 years.
- Apart from this, a research grant of Rs. 2 lakh is provided to each of the fellows for a period of 5 years to cover their foreign travel expenses for presenting research papers.
- A maximum of 3000 Fellows are selected in a three-year period and government provides necessary budgetary support to all Institutions for up-gradation of research.

Pulitzer Prize

- Three Indian photojournalists based in Jammu & Kashmir won the 2020 Pulitzer Prize for feature photography for their coverage of the region during the clampdown that followed the Union government's decision last August to divest the region of its special status and reorganise it into two Union Territories.
- The Pulitzer Prize is an award for achievements in newspaper, magazine and online journalism, literature, and musical composition in the United States.
- It was established in 1917 by provisions in the will of Joseph Pulitzer, who had made his fortune as a newspaper publisher, and is administered by Columbia University.
- The awards are made by Columbia University on the recommendation of the Pulitzer Prize Board, composed of judges appointed by the university.
- Prizes are awarded yearly in twenty-one categories. In twenty of the categories, each winner receives a certificate and a US\$ 15,000 cash award. The winner in the public service category is awarded a gold medal.

International Labour Day

- May 1 is celebrated as International Labour Day or International Workers' Day in many countries around the world to honour the contributions of the labourers or working class people.
- Interestingly, apart from being Labour Day, May 1 is also marked as Maharashtra Day and Gujarat Day to mark the date in 1960 when the two western states attained statehood after the erstwhile Bombay state was divided on linguistic lines.

For its history, please refer The Recitals- May 2019

International Day of Families

- The International Day of Families was recently celebrated on 15th May. International Family Day is celebrated in order to raise consciousness about the importance of families and to address the issues that may adversely impact those efforts.
- Theme this year is "Forming Families: Copenhagen & Beijing+25".
- The United Nations passed a resolution in 1993 to promote better living conditions and the social development of families around the world. The day was proclaimed the following year as the International Day of Families to account for the socio-economic structures that affect the stability of families in various parts of the world.

Copenhagen and Beijing+25

- Copenhagen and Beijing+25 is in reference to the World Conferences on Women (WCW) held by United Nations. The United Nations has organized four world conferences on women.
- These took place in Mexico City in 1975, Copenhagen in 1980, Nairobi in 1985 and Beijing in 1995. The last was followed by a series of five-year reviews. The year 2020 is the 25th anniversary of the Beijing WCW, which led to the name Beijing+25

WCW, Copenhagen (1980)

A Programme of Action called for stronger national measures to ensure women's ownership & control of property, as well as improvements in protecting women's rights to inheritance, child custody & nationality.

WCW, Beijing (1995)

- It marked a significant turning point for the global agenda for gender equality and is considered the key global policy document on gender equality.
- It sets strategic objectives and actions for the advancement of women and the achievement of gender equality in 12 critical areas of concern.

WHO Cites Concerns Over BCG Vaccine

- The World Health Organization has highlighted a few critical issues over the use of BCG vaccine for COVID-19. It also underscored the importance of randomised controlled trials of the vaccine to understand its safety and efficacy before using it on healthcare workers.
- Randomised controlled trials using BCG vaccine are under way in the Netherlands and Australia to find out whether the vaccine can reduce the incidence and severity of COVID-19 among healthcare workers.
- An earlier study had found an association between countries that have a universal BCG vaccination and reduced coronavirus cases — and even deaths. It was found that the BCG vaccine, which enhances the innate immune response to subsequent infections, might reduce viral load after SARS-COV-2 exposure, with a consequent less severe COVID-19 and more rapid recovery.
- According to Translational Health Science and Technology Institute, Faridabad, BCG given early in life does improve the immune system and the vaccine can prevent intracellular infections. So, the protective effect of BCG against COVID-19 is a biologically plausible hypothesis.

Concerns Over BCG Vaccine

- However, WHO has asked countries to wait for the results of the randomised controlled trials of the BCG vaccine for the following reasons:
- The association of fewer COVID-19 cases in countries that have a universal BCG vaccination programme is based on population rather than individual data.
- Moreover, the beneficial effects of the BCG vaccine given at birth are “unlikely” to reduce the severity of COVID-19 decades later, as the beneficial off-target effects of the BCG vaccine might be altered by subsequent administration of a different vaccine.
- Further, there is a remote possibility, that the BCG vaccine might ramp up the immune system and lead to worsening of COVID-19 in a small population of patients with a severe disease.
- This assumes significance as it is already known that the virus induces cytokine storm in some patients, leading to further complications — and even death.
- If not effective against the novel coronavirus, BCG vaccination is likely to give a false sense of security to people, especially during the pandemic and using the vaccine without evidence of its benefits could negatively impact vaccine supply, which is already short, to protect children against TB in high-risk countries.

For more information on BCG and its correlation with corona, please refer The Recitals – April 2020.

Coir Geotextiles for PMGSY

- The **National Rural Infrastructure Development Agency**, under Union Ministry of Rural Development, has recently announced that coir geo-textiles will be used in the construction of rural roads under the third phase of Pradhan Mantri Gram Sadak Yojana (PMGSY-III).
- As per the PMGSY new technology guidelines for road construction, 15 per cent length of roads in each batch of proposals is to be constructed using new technologies. Out of this 5 per cent roads are to be constructed using **Indian Roads Congress (IRC)** accredited technology. Thus, 5 per cent length of the rural roads under PMGSY-III will be constructed using coir geo-textiles.

- The decision will give a big boost to the coir industry as it opens up a huge market potential for coir geo-textiles in the country, especially in these difficult times of COVID-19 pandemic.

Geo Textiles

- Geotextiles are permeable fabrics like polypropylene or polyester which, when used in association with soil, have the ability to separate, filter, reinforce, protect, or drain.
- Geotextiles are used in ground and civil engineering applications for improving the soil behaviour, preventing soil erosion and to help consolidation of the soil.

Coir

- Coir or coconut fibre, is a natural fibre extracted from coconut. It is the fibrous material found between the hard, internal shell and the outer coat of a coconut and is used in products such as floor mats, doormats, brushes and mattresses. Coir

Coir Geo Textiles

- Coir geo-textiles are 100% biodegradable permeable fabric, which are natural, strong, highly durable, resistant to rots, moulds and moisture, and free from any microbial attack.
- Its high tensile strength protects steep surfaces from heavy flows and debris movement and high durability permits plant and soil establishment, natural invasion and land stabilisation.

Indian Road Congress

- IRC is the apex body of Highway Engineers in the country, which was set up in 1934 on the recommendations of the Indian Road Development Committee with the objective of promoting and encouraging the science for building and maintenance of roads in India.
- It provides a national forum for sharing of knowledge and pooling of experience on the entire range of subjects dealing with the construction and maintenance of roads and bridges.
- It aims to align itself to global initiatives of environmental strategy for promotion of cleaner, less energy intensive and less polluting construction techniques.

For PMGSY III, please refer The Recitals- July 2019

Sanjivani App

- The Union Health Ministry has recently launched the Sanjivani app, developed by the Ministry of AYUSH in collaboration with the Ministry of Electronics and IT (MeitY) and is targeted to help about 50 lakh people across the country.
- The Covid-19 management has provided a potent platform for alliance between MoHFW, MoAYUSH and technology organisations such as CSIR, ICMR, and UGC to not only develop AYUSH interventions and solutions, but also help in promoting AYUSH knowledge for the larger good of the global community.
- The app will help to generate data on acceptance and usage of AYUSH advocacies and measures among the population and its impact in prevention of Covid-19.

Samarth ERP

- To automate operations, the National Institute of Technology, Kurukshetra, one of the institutes of national importance and one of 30 such institutions in the country, has implemented Samarth, an enterprise resource planning (ERP) software.
- The software is an open standard, open source architecture process automation engine for Universities and Higher Educational Institutions, developed by the Department of Higher Education,

Ministry of Human Resource Development (MHRD) under National Mission of Education in Information and Communication Technology Scheme (NMEICT).

- The initiative will enhance productivity through better information management in the institute by seamless access to information, and its utilization for various purposes. It caters faculties and students by providing different study modules.

NMEICT

- The National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time anywhere mode.
- It is a landmark initiative of the MHRD to address all the education and learning related needs of students, teachers and lifelong learners.

CoAST India

- India Observatory, has recently launched a GIS-enabled dashboard that includes an India map reflecting the movement of migrants in real time on their long journeys, often on foot, along with facilities and relief organisations on their routes.
- The platform, a collaboration with Foundation for Ecological Security (FES) as its main nodal point, is called CoAST India (Collaboration/Covid Action Support Group).

India Observatory

- India Observatory was set up in December 2019, as a collaborative tech initiative that aims to present comprehensive information on India's social, ecological and economic parameters on a single platform.
- It is designed to supplement local level decision making by village communities, panchayats, NGOs and government officials.
- It has the 'Data Platform' at its core, which is built on open source and is thus freely available for civil society organizations, students, government departments and citizens.

National Career Service Project (NCSP)

- The **Ministry of Labour and Employment** under its National Career Service Project (**NCSP**) has now started offering **free online "Career Skills Training"** in partnership with **TCS ION** for its registered job-seekers.
- This course on soft skills assists the learners in enhancing personality development with modules on corporate etiquette, improving interpersonal skills, and making impactful presentations including other necessary soft skills demanded by the industry today. The training module is available in **Hindi and English** on the NCS portal.
- NCS Project is implemented for transformation of National Employment Service to provide a variety of employment related services like job search, career counselling, information on skill development courses, apprenticeship and internships through an on-line portal of NCS.
- There are around 1 crore active job seekers and 54,000 active employers registered on the NCS portal and around 73 lakh vacancies have been filled through the portal so far. All services on NCS Portal are free.
- Around 1,000 employment exchanges, including 200 model career centres, across the country are integrated with NCS Portal.

- **Online Job Fairs** are being organized to bridge the gap between job aspirants and employers where the complete cycle from job posting to selection of candidate can be completed on the portal. Around 76 Online Job Fairs have been conducted by NCS during the lockdown Period.

WHO Foundation

- The World Health Organization (WHO) recently announced the creation of the WHO Foundation, an independent grant-making entity, that will support the Organization's efforts to address the most pressing global health challenges.
- The United States recently suspended funding to the WHO after President Donald Trump complained about its handling of the coronavirus pandemic and accused it of being China-centric.
- Trump has also threatened to halt funding from the body's top donor altogether if it does not commit to reforms within 30 days. However, the WHO said that the creation of the Foundation had nothing to do with the recent funding issues.
- The foundation's goal is to help broaden WHO's donor base and work towards more sustainable and predictable funding.
- **Headquartered in Geneva** and legally independent from the WHO, the Foundation will work with individual donors, the general public and corporate partners to strengthen health systems globally.
- In doing so, it will help to deliver on the Organization's **"triple billion" goals**. Featured in WHO's five-year strategic plan, these goals aim to:
 - i) protect 1 billion people from health emergencies;
 - ii) extend universal health coverage to 1 billion people; and
 - iii) assure healthy lives and wellbeing to 1 billion people by 2023.

Endemic and Syndemic Disease

- The World Health Organization's emergencies chief recently said that it's possible that the new coronavirus may never go away and has warned that it's impossible to predict when the pandemic might be controlled.
- Moreover, without a vaccine, it could take years for the population to build up sufficient levels of immunity to it and the virus may become just another endemic virus.
- According to the US Centers for Disease Control and Prevention (CDC), a disease is endemic when its presence or usual prevalence in the population is constant. When the cases begin to rise, it is classified as an epidemic. If this epidemic has been recorded in several countries and areas, it is called a pandemic.
- Some examples of endemics include the chicken pox and malaria, where there are predictable number of cases every year in certain parts of the world.
- R_0 refers to the number of people infected by a person who has the disease. If R_0 is equal to 1, then the disease is endemic.
- When $R_0 > 1$, it implies that the cases are increasing and that the disease will eventually become an epidemic. If $R_0 < 1$, it implies the number of cases of the disease are decreasing.

Impact Of An Endemic Disease

- When epidemics become endemic, they become "increasingly tolerated" and the responsibility of protecting against it shifts from the government to the individual.
- This means, rather than government agencies actively engaging in tracking and identifying cases, the individuals themselves will be responsible for managing risk from the disease and seeking care.

- Further, the socio-political response to the disease may also change, with investment in the disease becoming institutionalised along with the disease-inducing behavioural changes in people.

Syndemic Disease

- With diseases like dengue and malaria emerging with the upcoming monsoon season in tropical South Asia, experts have also raised the possibility of Covid-19 turning into a syndemic.
- A syndemic is a situation when two or more epidemics interact synergistically to produce an increased burden of disease in a population
- The 1957 Asian influenza pandemic, for example, showed that deaths then could be not only due to the primary viral infection, but also due to secondary bacterial infections among influenza patients; in short, they were caused by a viral/bacterial syndemic.

Way Ahead

- Given that antibiotics resistance across the world is already a problem, the medical community needs to be aware of co-morbidities, especially if COVID-19 deepens as a syndemic in populations with antibiotic resistance.
- Also, it is important to watch out for secondary bacterial infection in those with weakened immunity due to COVID-19.
- Societies around the world will also have to consider innovations in population health surveillance technology and develop creative business models at a scale potentially unheard of in recent times.

Demographic Data

- The Registrar General of India recently released its Sample Registration System (SRS) bulletin based on data collected for 2018.
- The SRS is a demographic survey for providing reliable annual estimates of infant mortality rate, birth rate, death rate and other indicators at the national and sub-national levels.

Birth Rate

- Birth rate is a crude measure of fertility of a population and a crucial determinant of population growth. 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 in the last four decades.
- There has been about an 11 per cent decline in birth rate in the last decade, from 22.5 in 2009 to 20.0 in 2018. The corresponding decline in rural areas is 24.1 to 21.6, and in urban areas, it is 18.3 to 16.7.
- Bihar has the highest birth rate at 26.2 and Andaman and Nicobar Islands at 11.2 has the lowest birth rate.

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. The decline has been steeper in rural areas.
- In the last decade, death rate at an all-India level has declined from 7.3 to 6.2. The corresponding decline in rural areas is 7.8 to 6.7 and in urban areas is 5.8 to 5.1.

Infant Mortality Rate

- As per the data released the infant mortality rate is 32, which is about one-fourth as compared to 1971 (129).

- In the last 10 years, IMR at an all-India level has declined from 50 to 32. The percentage decline in rural areas is 35% and in urban areas is 32%.
- Madhya Pradesh has the highest IMR of 48 and Nagaland has the lowest IMR of 4.

West Bengal Major Irrigation and Flood Management Project

- The long-awaited remedial measure — the West Bengal Major Irrigation and Flood Management Project (WBMIFMP) — for the flood-hit Damodar Valley Command Area (DVCA) will soon be a reality.
- The Union government, the Government of West Bengal and the Asian Infrastructure Investment Bank (AIIB) recently signed a loan agreement for a US\$145 million project to improve irrigation services and flood management in DVCA in West Bengal.
- The total value of the project is \$413.8 million, co-financed between the AIIB (\$145 million), IBRD (\$145 million) and the Government of West Bengal (\$123.8 million). The \$145 million loan from the AIIB has a 6-year grace period, and a maturity of 24 years. It is expected that the project could be completed by 2025.

Issues

- The DVCA is over 60 years old, and in need of modernization. Key challenges include degradation of infrastructure and inadequate irrigation management, including poor quality of service delivery and the failure to serve the middle and tail parts of the canal network with surface water.
- Tail end farmers are compelled to extract groundwater, which increases the costs of cultivation and undermines sustainability. Between 2005 and 2017, the number of semi-critical blocks increased from five to 19 (out of a total of 41 blocks).

Benefits

- The project will benefit about 2.7 million farmers from five districts of West Bengal with better irrigation services and improved protection against annual flooding to mitigate the impact of climate change.
- It will help in optimizing the use of surface and groundwater, which will help boost agricultural productivity, increase incomes in rural areas and give a boost to the regional economy.

Damodar River

- Damodar river flows across the states of Jharkhand and West Bengal. Rich in mineral resources, the valley is home to large-scale mining and industrial activity.
- It has also been known as the Sorrow of Bengal because of its ravaging floods in the plains of West Bengal

Alcohol and State Finances

- Recently, long queues were seen outside liquor stores around the country after restrictions on sale of alcohol were lifted in the third phase of the nationwide lockdown.
- Manufacture and sale of liquor is one of the major sources of State revenue, and the reopening comes at a time when the states have been struggling to generate revenue amid the disruption on account of the lockdown.
- Generally, states levy excise duty on manufacture and sale of liquor. Some states, for example Tamil Nadu, also impose VAT (value added tax). Besides, a substantial amount comes from licences, fine and confiscation of alcohol products.

- States also charge special fees on imported foreign liquor; transport fee; and label & brand registration charges. A few states, such as Uttar Pradesh, have imposed a “special duty on liquor” to collect funds for special purposes, such as maintenance of stray cattle.
- RBI’s ‘State Finances: A Study of Budgets of 2019-20’ shows that state excise duty on alcohol accounts for around 10-15 per cent of Own Tax Revenue of a majority of states. This is the reason states have always wanted liquor to be kept out of the ambit of GST.

States’ Earning From Excise On Liquor

- The RBI report shows that during 2019-20, the 29 states and the UTs of Delhi and Puducherry had budgeted a combined Rs 1,75,501.42 crore from state excise on liquor.
- On an average, the states collected about Rs 12,500 crore per month from excise on liquor in 2018-19, which rose to about Rs 15,000 crore per month in 2019-20, and which was further expected to cross Rs 15,000 crore per month in the current financial year.

WHAT STATES EARNED AS EXCISE DUTY (IN ₹ CRORE)		
	2018-19 (RE)	2019-20 (BE)
All states + 2 UTs	1,50,657.959	1,75,501.422
Uttar Pradesh	25,100	31,517.41
Karnataka	19,750	20,950
Maharashtra	15,343.085	17,477.388
West Bengal	10,554.36	11,873.65
Telangana	10,313.685	10,901

Top 5 earners listed above.
Source: State Finances: A Study of Budgets of 2019-20; RBI

- In 2018-19, the five states that collected the highest revenue from excise duty on liquor were Uttar Pradesh (Rs 25,100 crore), Karnataka (Rs 19,750 crore), Maharashtra (Rs 15,343.08 crore), West Bengal (Rs 10,554.36 crore) and Telangana (Rs 10,313.68 crore).
- One reason why UP collects the highest is that it levies only excise duty on manufacture and sale of liquor. It does not collect VAT separately, unlike states such as Tamil Nadu, whose VAT collections do not reflect in the excise duty collections.

Other Sources Of Revenue For States

- The states’ revenues comprise broadly two categories — **Tax Revenue and Non-Tax Revenue**. Tax revenue is divided into two further categories: State’s Own Tax Revenue, and Share in Central Taxes.
- Own Tax Revenue comprises three principal sources:
 - **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) and
 - **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”).
- According to the RBI report, 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%.

Open Budget Survey

- The Open Budget Survey was recently released by **International Budget Partnership’s Open Budget Initiative**. It is a global research and advocacy program to promote public access to budget information and the adoption of accountable budget systems.
- The biennial survey, covers 117 countries and rates the level of budget transparency across countries on a scale of 0-100, based on several normative, internationally comparable indicators.

- It evaluates for each country, the availability of key budget documents of the Central or Federal Government, and assesses whether these are made public, in a timely manner, and provide comprehensive information.

Global Findings

- The latest report finds a modest global improvement in budget transparency, which is consistent with the overall trend measured by the survey over the past decade.
- However, despite some gains, global average levels of budget transparency remain insufficient (with an average score of only 45 out of 100), meaning that the majority of countries surveyed do not publish several key budget documents with information necessary for meaningful public dialogue on budget decisions.
- **New Zealand** tops the chart with a score 87. **South Africa (87), Mexico (82) and Brazil (81)** are among the top six countries providing extensive information to public for scrutiny.
- Even when governments publish sufficient information for an informed public debate on budget policies, few provide formal spaces in which direct dialogue between government and citizens can occur. The average global score on the survey's participation measure is a dismal 14 out of 100.
- The survey also measures the strength and independence of legislatures and supreme audit institutions (SAI)—the key institutions in most countries providing formal oversight of budgets. Here the scores are mixed but, once again, they expose key weaknesses in the accountability of fiscal systems in the majority of countries. Only 30 countries have adequate oversight from legislatures and SAIs.

Findings On India

- The survey has provided India's Union Budget process a transparency score of 49 out of 100, (which is higher than the global average of 45), placing India at the **53rd position**.
- India performs well in publishing timely and relevant information in the audit reports and in-year reports and has scored well and above many other countries.
- However, the survey observed that absence of a published **Pre-Budget Statement** and not bringing out a Mid-Year Review in 2018-19 pulled down the transparency score for the Union Budget of India.
- **Providing adequate space for public participation for priority setting** in its budgets is also flagged by the OBS as an area of improvement required for India.
- The survey report argues that the Union Government should also publish a Pre-Budget Statement, which can be scrutinised by the legislators and the public at large before the annual budget is presented.

Way Ahead

- In light of the COVID-19 pandemic, and the massive spending measures that governments are now undertaking to respond to the crisis, these findings from the OBS are concerning.
- However, these actions will increase the risks of leakages and ineffective spending – and these risks will be even greater in countries with low transparency and weak oversight.
- Hence, it is important there is no trade-off between a rapid emergency response and stronger governance of that response. Countries can take action and expand transparency and oversight of the expenditures made to respond to the COVID-19 pandemic.
- As countries increase their spending, they can also improve their documentation processes, deepen public monitoring, and strengthen auditing and oversight practices.

IBP

- IBP was formed in 1997 to promote transparent and inclusive government budget processes as a means to improve governance and service delivery in the developing world.
- IBP's ultimate aim is to ensure that public resources are used more effectively to fight poverty and promote equitable and sustainable development in countries around the world.
- It collaborates with civil society around the world to use budget analysis and advocacy as a tool to improve effective governance and reduce poverty.

Demand Curve Shift

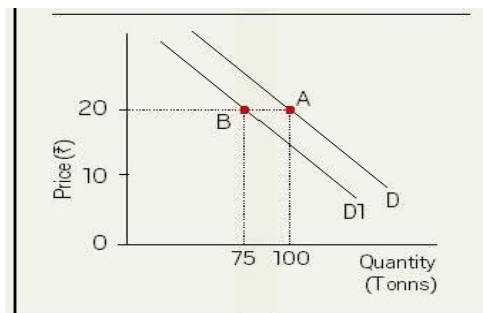
- While there is debate on how much the lockdown has helped in flattening the Covid-19 curve, it has clearly led to a flattening of prices through a “leftward shift in the demand curve”.
- The best way to illustrate this is through two agricultural commodities — potato and milk — that were experiencing significant production shortfalls.

Impact on Potato

- In case of potatoes, cold stores across India have stocked only an estimated 36 crore bags (of 50 kg each) from the main rabi (winter-spring) crop harvested in February-March. The number is significantly lower than the 48 crore in 2019, 46 crore in 2018 and the record 57 crore bags of the 2017 post-demonetisation crop.
- Production this time has been much lower, which should have translated into far better prices than last year, but the lockdown has upset all calculations.
- With hotels, restaurants and street food joints shut and no weddings or other public functions taking place, consumption of potato-based snacks has taken a beating. This demand destruction has caused prices to fall.

Shift In The Demand Curve

- The above price decline, though, isn't the usual one that economists term “movement along the demand curve”. Such movement involves a reduction / increase in quantity demanded only on account of an increase/decrease in price, and vice versa.
- What is being seen now, however, is the demand curve itself “shifting”, which is due to the collapse of institutional or business demand for potatoes.
- Thus, in the chart, 100 tonnes was being demanded at Rs 20 pre-lockdown, but with the original demand curve shifting from D to D1, only 75 tonnes (these are purely illustrative numbers) would be bought at the same price.
- The quantity demanded has been affected by something other than price — in this case, the shutdown of businesses.



Shift In The Demand Curve Of Milk

- The leftward shift in the demand curve is even more obvious in case of milk. 2019-20 saw India's milk production, perhaps, fall for the first time in decades due to which, till mid-March, there were plans to import up to one lakh tonnes of skimmed milk powder (SMP).
- Before the lockdown, dairies were selling SMP at Rs 300-310 per kg and cow butter at Rs 320 per kg. Those prices have not just flattened, but crashed to Rs 170 and Rs 230/kg levels.

- This, again, is the outcome of no institutional demand, whether from tea stalls and ice-cream makers or suppliers of khoa/chenna to sweetmeat sellers. In other words, it is a “shift” and not mere “movement” along the same demand curve.

Future Outlook

- The current situation is expected to worsen with kharif potato plantings during May-August in Karnataka and Maharashtra. Once this crop arrives in the market, the price will further go down significantly.
- Hence farmer organisations are suggesting that farmers in Maharashtra and Karnataka should be discouraged from cultivating potato during this period, as it will only lead to future losses.
- Farmer organisations are also demanding the government to allow APMC (agricultural produce market committee) mandis to open 24 hours. As per them, this would enable social distancing and make buyers more confident about going to the markets which are currently overcrowded and open only for a few hours.

MSP For Minor Forest Produce Raised

- Government has raised the minimum support price for Minor Forest Produce of 49 items. The increase across various items of Minor Forest Produce (MFP) ranges from 16 per cent to 66 per cent.
- The MSP for Minor Forest Produces is **revised once in every three years** by the **Pricing Cell constituted under the Ministry of Tribal Affairs**. However, due to the difficult circumstances prevailing due to COVID-19, it was decided to relax the existing provisions to revise the MSP.
- An online monitoring dashboard called the **Van Dhan Monit Dashboard** has also been created for reporting the activities undertaken at the State level for procurement of Minor Forest Produce.
- The dashboard is a part of the “**TRIFED E- Sampark Setu**” being created for an exchange of information to and from every panchayat and Van Dhan Kendra, either through mail or mobile.

MSP for MFP

- The people who depend on MFP are also beset with a number of other problems such as perishable nature of the produce, lack of holding capacity, lack of marketing infrastructure, exploitation by middlemen, lack of Government intervention at the required time and scale, volatile nature of markets etc. Consequently, the MFP gatherers who are mostly poor are unable to bargain for fair prices.
- To address these issues, the government introduced the scheme of “**Mechanism For Marketing Of MFP Through MSP And Development Of Value Chain**”.
- It is a holistic scheme for development of MFP trade including its value chain and necessary infrastructure at local level.
- It seeks to establish a framework to ensure fair returns for the produce collected by tribals, assurance of buying at a particular price, primary processing, storage, transportation etc while ensuring sustainability of the resource base.

Calamity Cess

- The central government is considering a calamity cess on Goods and Services Tax (GST), similar to the **disaster relief cess introduced in Kerala** following the monsoon floods of 2018. The issue will be raised at the next GST Council meeting.

- Kerala is the only state to have levied such a cess using the Constitutional provision, Section (4) (F) of Article 279 A. It started levying **1 % cess on GST** for two years from August 1, 2019, on the value of goods and services taxed at 12 per cent, 18 per cent and 28 per cent.
- As per the provision, the GST council can make recommendations to States for any special rate or rates for a specified period, to raise additional resources during any natural calamity or disaster.
- The GST (Compensation to States) Act, 2017 also provides for the imposition of cess up to the rate of 15 per cent ad valorem (based on estimated value) on any other supplies.

Concerns Related To The Move

- In the current scenario where States are not even able to collect the GST, industry experts feel that such a move would not be a good idea as the industry is already facing a huge crisis. Furthermore, GST compensation is due for all the states for the four-month period from December to March.
- The cess will not only lead to an additional burden on the industry which is having to resort to paycuts and layoffs, but will also lead to further dampening of the economic sentiments and delay the revival process from the current slowdown.
- It has, however, been pointed out that a proposal to levy cess on “sin goods” — alcohol and tobacco products — could be considered, may be in 6-7 months.

Cess

- Cess is different from taxes as it is charged over and above the existing taxes. A cess is usually imposed additionally when the state or the central govt looks to raise funds for specific purposes.
- For example, the government levies an education cess to generate additional revenue for funding primary, secondary, and higher education. Cess is not a permanent source of revenue for the government, and it is discontinued when the purpose levying it is fulfilled. It can be **levied on both indirect and direct taxes**.
- If the cess collected in a particular year goes unspent, it cannot be allocated for other purposes. The amount gets carried over to the next year and can only be used for the cause it was meant for.
- The procedure for introducing cess is comparatively simpler than getting the provisions done for introducing taxes, which usually means a change in the law. Cess is also easier to modify and abolish.

TB Drugs Used For Crops

- The Registration Committee (RC) under Central Insecticides Board and Registration Committee (CIBRC) has recommended that use of antibiotics streptomycin & tetracycline be completely banned with immediate effect on crops where other options were available for bacterial disease control.
- The final report accepted the recommendation of the sub-committee, on sale and use of streptomycin sulphate (9 per cent) and tetracycline hydrochloride (1 per cent).
- Further, for crops which have no alternatives available, the use of streptomycin and tetracycline should be phased out by 2022. Till then, the antibiotics could be used on crops strictly as per the label claim.

Issues With The Use Of Antibiotics

- In the assessment carried out by Centre for Science and Environment (CSE) in agricultural farms of Delhi, Punjab and Haryana, it had found that streptomycin, a 90:10 combination of streptomycin and tetracycline, was being routinely and indiscriminately used by farmers in high doses in crops.

- Although streptocycline use is allowed for eight crops by the CIBRC, it was found to be used on many more crops in practice.
- CSE also brought to light that streptomycin had 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).
- CSE had earlier recommended that antibiotics should not be used as pesticides for crops, but preserved for treatment of bacterial infections in humans

Way Ahead

- The ban will help in plugging gaps such as registering the antibiotics in the name of pesticides or using them in an unregulatory fashion in the absence of prescription.
- The RC has acknowledged that diseases in crops can be managed by using integrated pest management and other practices. It also requested the Indian Council of Agricultural Research (ICAR) to initiate research on better and safe alternatives, such that these could be available for all recommended crops in a time-bound manner.

Central Insecticides Board and Registration Committee (CIBRC)

- Central Insecticides Board & Registration Committee (CIBRC) was set up by the Ministry of Agriculture in the year 1970 to regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risks to human beings and animals.
- Following which, the Insecticides Act, 1968 was brought into force from 1971 with the publication of Insecticides Rules, 1971.
- The Central Insecticides Board (CIB) advises the Central Government and State Governments on technical matters arising out of the administration of this Act and to carry out the other functions assigned to the Board by or under this rules.

Direct Seeding of Rice (DSR)

- Due to the Covid crisis and the lockdown, the two granary states of Punjab and Haryana could face a shortage of an estimated 10 lakh labourers, mainly seasonal migrants from Bihar and Uttar Pradesh, to undertake transplantation of paddy in the upcoming kharif season.
- Due to which farmers are now being encouraged to adopt 'direct seeding of rice' (DSR) in place of conventional transplanting.

Difference Between DSR And Transplanting Of Paddy

- In transplanting, farmers prepare nurseries where the paddy seeds are first sown and raised into young plants. These seedlings are then uprooted and replanted 25-35 days later in the main field. The nursery seed bed is 5-10% of the area to be transplanted.
- In DSR, there is no nursery preparation or transplantation. The seeds are instead directly drilled into the field by a tractor-powered machine.
- In transplanting, the plants have to be irrigated almost daily (if there are no rains) to maintain a water depth of 4-5 cm.
- Paddy growth is compromised by weeds that compete for nutrition, sunlight and water. Through irrigation, water prevents growth of weeds by denying them oxygen in the submerged stage, whereas the soft 'aerenchyma tissues' in paddy plants allow air to penetrate through their roots. Water, thus, acts as a herbicide for paddy.
- In DSR, water is replaced by real chemical herbicides and farmers have to only level their land and give one pre-sowing irrigation.

Advantages of DSR

- The biggest advantage in DSR is of water savings, as the first irrigation (apart from the pre-sowing) under DSR is necessary only 21 days after sowing.
- The second savings, relevant in the present context, is that of labour. About three labourers are required to transplant one acre of paddy in a single day.

Drawbacks

- The main issue is availability of the herbicides. Even the seed requirement for DSR is also higher, at 8-10 kg/acre, compared to 4-5 kg in transplanting.
- Further, laser land levelling, which costs Rs 1,000/acre, is compulsory in DSR, which is not the case in transplanting.
- The time of sowing is also important and the seeds have to be sown by the first fortnight of June, as the plants have to come out properly before the monsoon rains arrive. There is no such problem in transplanting, where the saplings have already been raised in the nursery.

Other Reforms Announced Under Atmanirbhar Bharat Abhiyan (Self-Reliant India)

- In his address to the nation, PM strongly identified with the theme of atmanirbhar Bharat (self-reliant India) and stressed on the importance of promoting local products.
- He stressed on strengthening all stakeholders in the supply chain to increase, as well as fulfil demand and made a strong pitch for local manufacturing. This would prepare India for the tough competition in the global supply chain.
- Self-reliance wouldn't be a self-absorbed vision but would rather make the country a part of global supply chains — seen as part of the overall strategy to attract foreign companies planning to shift from China.
- The underlying idea is not of isolation, but of integration and the attention is not on tariff but on transformation. The PM highlighted that India's culture considered the world as one family, and progress in India was part of, and also contributed to, progress in the whole world.

A. New Public Sector Enterprise Policy

- The Finance Minister also unveiled the government's plan to limit the role of public sector companies across the economy.
- The government will soon announce a new policy for public sector enterprises which will pave the way for the entry of private companies in all sectors where state-run firms are present.
- Even in the strategic sectors, PSU presence will be limited to 1-4 entities, while in the other segments of the economy, the companies would be privatised, merged or brought under holding companies.
- However, experts have criticised the new Public Sector Enterprise Policy, noting that privatising PSUs would find fewer buyers at a time of global recession.
- Moreover, any potential buyer would be spending money which could have gone into fresh investment on a financial transfer instead, effectively contracting demand.

B. Enhancing Ease of Doing Business**Changes to IBC/Companies Act**

- Changes to the Insolvency and Bankruptcy Code (IBC) as well as the Companies Act were proposed to help small and medium businesses. As part of this, debt incurred by companies on account of coronavirus would not be included in the category of defaults and no fresh insolvency proceedings would be initiated for a year.

- Apart from changing the norms for triggering of insolvency, the minimum default threshold to initiate proceedings under the Insolvency and Bankruptcy Code (IBC) has been raised from Rs 1 lakh to Rs 1 crore, an attempt aimed at giving relief to MSMEs.

Provisions for Decriminalisation

- There will be decriminalisation of the Companies Act in violations involving minor technical and procedural defaults including shortcoming in CSR reporting, inadequacies in board reports, filing defaults and delay in holding AGMs.
- A majority of the compoundable offences sections will be shifted to internal adjudication mechanism (IAM), which will help to de-clog the criminal courts and NCLT.
- Further, seven compoundable offences under the Companies Act will be dropped altogether and five will be dealt with under an alternative framework.

C. Coal and Mining Sector Reforms

- Unleashing a wave of reforms in the mining sector that counts as one of the largest employers in the country, the Finance Minister said, mines will be **auctioned on revenue-sharing basis** under a simplified regime to increase ease of doing business. A revenue sharing mechanism instead of the earlier fixed price per tonne will introduce competition, transparency and private sector participation in the market.
- The government will auction 500 mineral mines by **removing the distinction between captive and non-captive blocks**. The distinction will be removed to allow transfer of mining leases and sale of surplus unused mineral blocks. Elimination of distinction between captive mines and non-captive will ensure a level playing field for players in the integrated metals space and allow the mines to be auctioned for better value instead of states reserving them for captive use.
- The government monopoly on coal would be removed with the **introduction of commercial mining**, allowing any private player to bid for a coal block and sell it in the open market. Earlier, only captive consumers with end-use ownership could bid for coal blocks.
- Almost 50 blocks will be offered immediately, with no eligibility conditions for bidding, apart from upfront payment with a ceiling. In other words, companies can bid even if they do not have experience in coal mining and can sell the output in the open market.
- Addressing a major concern of prospective investors, successful bidders will be allowed to raise production by up to 40% from a mine every year without seeking green clearance afresh.
- Further, steps will be taken to rationalise stamp duty as part of reforms to stimulate the sector, which will help in reducing the burden on the sector that is highly taxed by the government.
- A **Rs 50,000-crore investment plan** has been made for creating infrastructure such as railway tracks and conveyors to evacuate coal from old and new mines and support Coal India's plan to raise production from 600 million tonne to a billion tonne in 2023-24.
- The government also indicated that it will provide a fresh push to coal gasification and coal bed methane extraction.

D. Power Distribution Reforms

- The government has decided to push privatisation of power distribution companies after a gap of over a decade. As per the announcement, discoms in Union Territories will be privatised, an experiment that has previously helped consumers in Delhi.
- The move will open lucrative markets such as Chandigarh and Pondicherry, with the possibility of power distribution in Jammu and Kashmir also being run by the private sector.

E. Reforms in Space Sector

- A big change in policy came in the space sector, where the government for the first time announced its intent to allow the private sector to be a co-partner in future planetary exploration and outer space travel initiatives such as Chandrayaan and Mars mission.
- This came with the promise to provide a level-playing field for private companies in satellites, launches and space-based services.

F. Reforms in Civil aviation

- With regard to civil aviation, six more airports are up for auction on private public partnership mode, while additional private investment will be invited at 12 airports in a move expected to bring ₹13,000 crore for the Airports Authority of India.
- Steps will be taken to ease restrictions on Indian airspace, of which only 60% is currently available. This will save flying time and aviation fuel, leading to a ₹1,000 crore per year benefit for the sector.
- The tax regime is also being rationalised to help make India a global hub for aircraft maintenance, repair and overhaul.

G. Reforms in Defence sector

Hike in FDI

- The government has decided to increase the FDI limit for defence production under the automatic route to 74%, from the current 49%.
- Several global arms majors have for long been demanding the hike in the FDI limit to have more management control of the Joint Ventures to step up investments in India.

Negative List Of Imports

- With an annual defence budget of about \$70 billion, India is behind only the US (\$732 billion) and China (\$261 billion) in terms of military expenditure around the globe.
- It is also the second-largest buyer of foreign weaponry after Saudi Arabia in the world, accounting for 9.2% of the total global arms imports during 2015-2019.
- Going forward there will be a notified list of weapons and platforms that will be banned for imports and there will be a push towards “indigenisation of imported spares”.
- The government would also make a separate budgetary provision for domestic defence procurements. The separate budget provision for domestic capital procurement would help reduce the defence import bill and encourage domestic manufacture.

Time Bound Procurement Process

- Framing of unrealistic technical parameters or GSQRs (general staff qualitative requirements) for weapon systems that DRDO-domestic industry can't deliver in specified timeframes, will not be allowed. This is being done to avoid the situation where, unrealistic GSQRs often result in a lengthy search for weapons and lead to single-vendor situations that are against the rules.
- Instead, there would be a time-bound defence procurement process, with faster decision-making through the setting of a project management unit to support contract management. This would be done along with realistic framing of GSQRs and a revamp of the inconvenient trial and testing procedures.

Corporatisation of Ordnance Factory Boards (OFB)

- In a major policy change, OFBs would be corporatised and eventually listed on the stock market to improve autonomy, efficiency and accountability, however, they would not be privatised.
- The draft note for Cabinet Committee on Security on corporatization of the OFB says, it would help increase the state-owned entity's turnover to Rs 30,000 crore by 2024-25, enhance its exports to

25% of the turnover, and increase self-reliance in technology from the existing 20% to 75% by 2028-29.

Stimulus Package Under Atmanirbhar Bharat Abhiyan

- The Prime Minister recently announced a stimulus package of Rs 20 lakh crore to support the economy which has suffered heavily due to the pandemic and the lockdown.
- The package, which includes measures already announced by the Reserve Bank of India (RBI) and the finance ministry, would be equal to 10% of the country's gross domestic product (GDP).
- Highlighting their contribution to the country and the suffering they have had experienced, PM said the package would also focus on empowering the poor, labourers, migrants and others from both organised and unorganised sectors.

Relief Measures For The Weaker Sections Of The Society

- Over the past month, migrant workers and others without ration cards have struggled without access to food.
- Thus, migrants who don't have ration cards will get 5 kg of wheat or rice per person and 1 kg of pulses per family for May and June each, with the cost working out to around Rs 3,500 crore.
- The move to provide free food grain for migrant workers is an extension of the **Pradhan Mantri Gharib Kalyan Yojana**, which provided benefits to 80 crore people with ration cards covered by the National Food Security Act (NFSA).
- There are an estimated 8 crore migrant workers who have been housed in government and privately run relief camps across the country since the lockdown. The Union government will engage with the State governments to locate these migrants and provide them the announced benefits.

Extension of PMAY scheme

- The Government has announced the launch of affordable rental housing complexes or workers' hostels, meant to provide social security to the urban poor and students, under the Pradhan Mantri Awas Yojana (PMAY) scheme.
- The immediate impetus for the scheme for residential complexes for migrants came from their harassment by landlords and the problem their departure from industrial hubs might cause for the objective of early resumption of economic normalcy.
- Both public and private agencies will be incentivised to build rental housing on government and private land, while existing government housing will be converted into rental units.
- The credit linked subsidy scheme for lower middle class housing under PMAY will also be extended by one year to March 2021, and is likely to benefit 2.2 lakh more families.
- The FM also expressed hope that this would also create jobs and stimulate demand for the steel, cement and construction industries.

Increase in MGNREGS Funding

- For returning migrants who have no means of livelihood back in their home villages, State governments have been directed to enrol them under the MGNREG Act.
- Wages under the scheme have been raised to a national average of Rs 202 per day against Rs 182 per day in the last financial year
- The government would allocate an additional Rs 40,000 crore, over and above the budgeted Rs 61,000 crore, to the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS).

- It is hoped that this will provide much needed support to migrants once they return home, by generating employment in the rural sector.
- However, given that States account for 40% of MGNREGS expenditure, including most upfront costs, they will also have to be willing to spend on the scheme.
- Furthermore, this is seen as a temporary assistance with the government hoping that workers will return to industrial hubs once the situation improves and the lockdown is eased.

Measures for NBFCs, Housing Finance Companies (HFCs) and Micro Finance Institutions (MFIs)

- NBFCs, HFCs and MFIs are all facing stress, as banks have turned extremely risk-averse in lending to them. Since many NBFCs do not have access to low cost deposits that banks have, their liquidity position and repayment capacity comes under threat when borrowers start defaulting or delaying repayments.
- The government has announced Rs 30,000 crore for a special liquidity scheme, under which investment will be made in investment grade debt papers of these institutions.
- The government also extended the partial credit guarantee scheme — under which it guarantees 20 per cent of the first loss to the lenders — NBFCs, HFCs and MFIs with low credit rating.
- This scheme is estimated to result in liquidity infusion of Rs 45,000 crore in debt papers that are rated AA or lower and even unrated securities issued by such entities, including the MFIs.
- However, industry executives argue that banks may still not be eager to lend to lower-rated companies, given the current risk aversion in markets.

Liquidity Injection For Discoms

- To bail out “cash desperate” electricity distribution companies (discoms) that have been struggling with repayment of dues to power generating (gencos) and transmission companies (transcos), the govt has announced a Rs 90,000 crore one-time “emergency liquid injection” to clear these dues.
- The government expects central public sector gencos to pass on the benefits of this move to the population by giving a rebate to discoms to pass on to their customers upon receipt of dues.
- Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) will provide the amount owed to discoms by their customers so that this money can then be used to pay off their dues to the entities providing them with the power
- The funds will be infused once states give PFC and REC guarantees to ensure repayment of the amount in the event that the discom is unable to pay back the corporations.

Increase In Borrowing Limit Of States

- State governments have been given more fiscal room in the current crisis with the hiking of their borrowing limits from 3% to 5% of Gross State Domestic Product (GSDP), which is particularly important as GSDPs are likely to contract.
- However, the hiked limits will be conditional on States implementing reforms related to ration portability, ease of doing business, power distribution, and urban local bodies.
- It is estimated that the increase in borrowing limits would make extra resources worth ₹4.28 lakh crore available to States.
- Also, States have so far borrowed only 14 per cent of the limit which is authorised for them and 86 per cent of the limit remains unutilised.
- It has been pointed by analysts that since the Centre’s cost of borrowing (6%) is lower than that of States, it would have been better for the Centre to borrow from the market and transfer the funds to States.

Miscellaneous Measures

- Small businesses who have taken loans under the MUDRA-Shishu scheme, meant for loans worth ₹50,000 or less, will receive a 2% interest subvention relief for the next year, which will cost the government ₹1,500 crore.
- Street vendors who have been hit hard by the lockdown will be given access to easy credit through a ₹5,000 crore scheme, which will offer ₹10,000 loans for initial working capital. The scheme will be launched within a month and will benefit 50 lakh vendors.
- The Centre plans a drive to enrol 2.5 crore farmers who are not yet part of the Kisan Credit Cards scheme, along with fish workers and livestock farmers, and provide them with ₹2 lakh crore worth of concessional credit.
- NABARD (National Bank for Agriculture and Rural Development) will also extend additional refinance support worth ₹30,000 crore to rural banks for crop loans.
- The refinance support is designed to meet post-harvest rabi (winter) and current kharif (summer) requirements of three crore small and marginal farmers in the months of May and June.

Jagannath Rath Yatra

- The Ministry of Home Affairs (MHA) has allowed the construction of chariots for the annual Rath Yatra at Jagannath Puri in Odisha.
- The Ministry said that the complete segregation of the construction site should be ensured and social-distancing norms followed. The decision regarding the holding of the Rath Yatra is to be taken by State government, keeping in view the conditions prevailing at that time.
- The Rath Yatra is expected to be held on June 23. It is one of the most important festivals in Odisha and lakhs come to Puri to participate in the festival.

Jagannath Temple

- The Jagannath temple is a temple dedicated to Lord Jagannath, a form of Vishnu, in Puri, Odisha on the eastern coast of India.
- The present temple was rebuilt from the 10th century onwards, on the site of an earlier temple, and begun by King Anantavarman Chodaganga Deva, first of the Eastern Ganga dynasty.
- The temple is famous for its annual Ratha yatra, or chariot festival, in which the three principal deities Lord Jagannath, his elder brother Lord Balabhadra and younger sister Devi Subhadra, are taken out in a procession on huge and elaborately decorated chariots.
- The festival commemorates Jagannath's annual visit to Gundicha Temple near Saradha Bali, Puri.
- Unlike the stone and metal icons found in most Hindu temples, the image of Jagannath is made of wood and is ceremoniously replaced every twelve or nineteen years by an exact replica.

Indo-Nepal Border Dispute

- Nepal's Cabinet has **endorsed a new political map** showing **Lipulekh, Kalapani and Limpiyadhura** under its territory.
- Ruling Nepal Communist Party lawmakers have also **tabled a special resolution** in Parliament **demanding return of Nepal's territory** in Kalapani, Limpiyadhura and Lipulekh.

What Triggered The Recent Revival Of Dispute

- In November 2019, India **published a revised political map** showing the newly created Union Territories of Jammu and Kashmir and Ladakh.

- The map showed Kalapani as part of Pithoragarh district which was immediately protested by Nepal.
- **This year, on May 8**, India inaugurated the **Darchula-Lipulekh pass link road**, cutting across the disputed Kalapani area which is used by Indian pilgrims to Kailash Mansarovar. This seems to have snowballed into the present controversy.
- Although, there are analysts who believe Chinese hand behind Nepal's current aggressive position.

Inauguration Of Link Road by India up to Lipulekh

- Inaugurated by Indian Defence Minister and built by the Border Roads Organisation, this road important for "strategic, religious and trade" reasons.
- The 80 km road goes right up to the Lipu Lekh pass on the LAC. Through this road, **Kailash Mansarovar pilgrims exit India into China** to reach the mountain and lake revered as the abode of Siva.
- As a result of this road, what used to be a difficult trek to the gateway, situated at 17,060 ft, **would now be an easy road trip.**

Alternate Routes Which Were Used Earlier

- One was through the **Nathu La border in Sikkim** and the other via Nepal. Both the routes entailed "20 per cent land journeys on Indian roads and 80 per cent land journeys in China.
- With the construction of new route, the pilgrims will now traverse 84 per cent land journeys on Indian roads and only 16 per cent in China.

Why Is Kalapani Territory Significant

- Lipulekh Pass, situated at an altitude of 5,000 meters, has geo-strategic value as **Tibet is on its northern side.**
- The lowest point is 11,980 ft, the highest is 20,280 ft. It helps India track Chinese movements in the region.
- Lipulekh is strategically located as it is **nearest to the heart of the Indian state** or the **National Capital Region** and can be of particular concern in case of an armed conflict with China.
- The pass is situated along the 80Km-long Uttarakhand-Nepal border.
- It was an ancient route for traders and pilgrims transiting between Nepal and Tibet.

Current Status

- At present, Kalapani, a 372 sq km area, is controlled by Indo-Tibetan Border Police (ITBP), which has a post there since 1962.
- The entire India-Nepal border is 1,758 km long. It is a porous open border.
- India claims Kalapani as part of Uttarakhand's Pithoragarh district while Nepal says it is part of its Dharchula district.
- Lipulekh has always been on the Indian map and **Nepal hasn't protested until now.** India had closed **Lipulekh from 1962 to 1991** due to the 1962 Sino-Indian war.

Chinese Stand On This Issue

- Beijing has an ambiguous position on Kalapani. On one hand, it treats Kalapani as a bilateral issue between India and Nepal.
- On the other, it was **2015 bilateral agreement between India and China** that opened up Lipulekh for trade. The **current link road** is constructed under this agreement.
- **Neither side consulted Nepal** or sought its opinion before this agreement that boosted pilgrimage and trade to Tibet.

Genesis of Current Border Dispute

- The Nepal-India border was **delineated by the Sugauli Treaty of 1816**. It was signed between Nepal and British India.
- According to treaty **'west of Kali river' belonged to India**. The treaty, however, did **not mention the source of Kali which runs through Kalapani**.
- British surveyors subsequently showed the origin of the river, with many tributaries, at different places. This digression has led to territorial disputes between the two countries.
- Nepal claims the river to Kalapani's west is the main Kali, and thus the country has territorial rights to the region.
- India holds that a ridgeline to Kalapani's east is the border, thus Kalapani falls in India.
- Another disputed area, the Lipulekh Pass atop Kalapani, is a mountain pass at the Uttarakhand-Nepal border.
- The third area that Nepal stakes claim to is Limpiyadhura, north west of Lipulekh, which according to the neighbouring country is the origin of Kali, hence Kalapani and Lipulekh in the east of Kali river belong to Nepal.

Other Disputed Area: Susta Region

- The area of Susta currently lies in West Champaran district, Bihar. Susta is located on the **bank of the Gandak river**.
- The change in course by Gandak river has created a dispute in this region.

Previous Efforts To Solve The Issue

- In the 1980s, the two sides set up the **Joint Technical Level Boundary Working Group** to delineate the boundary, which demarcated **everything except Kalapani and the other problem area in Susta**.
- When it was discussed at the prime ministerial level in 2000, between Atal Bihari Vajpayee and B P Koirala during the latter's visit to Delhi, both **sides agreed to demarcate the outstanding areas by 2002**. That has not happened.

India and RCEP

India has decided **not to file a fresh proposal** for rejoining negotiations on the ASEAN-led trade Regional Comprehensive Economic Partnership (RCEP).

Background

- In November 2019, India decided not to join the RCEP trade bloc over various concerns.
- However, the organization had set a deadline of May 15 if India wanted to rejoin the negotiation.

About RCEP

- The Regional Comprehensive Economic Partnership (RCEP) is a proposed free trade agreement (FTA) between ASEAN nations and its FTA partners.
- The ten ASEAN member nations include Singapore, Thailand, Vietnam, the Philippines, Cambodia, Brunei, Laos, Malaysia, Myanmar and Indonesia.
- The FTA partners of the ASEAN nations included China, Japan, Australia, New Zealand, South Korea and India. After India's pull out, ASEAN nations only have five FTA partners now.
- **Its principal purpose** is to "*achieve a modern, comprehensive, high-quality and mutually beneficial economic partnership agreement among the ASEAN Member States and ASEAN's FTA Partners.*"

India, Russia Collaboration on Coking Coal and Crude Oil Trade

India and Russia are in talks to expand their energy partnership by -

- Increasing crude oil imports from Russia and
- Signing a MoU to import coking coal to meet requirements of Indian steel industry.

Indo-Russia Collaboration In Field Of Energy

- The participation of Indian companies such as Indian Oil Corporation in Russias state-owned Rosneft's Vostok oil project in the Russian Arctic,
- Novatek's deal to supply of LNG to H-Energy, cooperation between Gail and Gazprom,
- Joint projects with Gazpromneft, and supply of crude oil by Rosneft to Indian Oil.
- India is keen to explore a **new sea route to source crude oil and LNG from Russian Arctic**. The route has the potential to cut cost and time for transporting LNG from Russia to India.
- Revival of **Vladivostok-Chennai shipping line** will also facilitate sourcing of coking coal from Russian Far East region that stretches from Siberia to the Pacific Ocean and is estimated to have 10-14 billion tonnes of oil and 14-15 trillion cubic metres of gas.

Need For Coking Coal

- Coking coal is to be mainly used to cater steel industry. According to one estimate, India will require 180 million tonnes of coking coal by 2030-31.
- The coking coal reserves in India is around 27.9 billion tonnes and it aims to meet 35% of its demand through indigenous production.

Indo-Bangla Protocol Route

India and Bangladesh signed the **2nd Addendum to the Protocol on Inland Water Transit and Trade in Dhaka**. This agreement will operationalise **five new ports of call** and **two new protocol routes** to boost the bilateral trade.

Key Highlights

- The second addendum signed facilitated - revision of parameters of Protocol on Transit and Trade; inclusion of new routes; and declaration of a host of new Ports of Call to facilitate trade between both the countries.
- New Routes added are:
 - **Sonamura-Daudkandi route** on Tripura's River Gomti – It will improve the connectivity of Tripura and adjoining States with Indian and Bangladesh's economic centres.
 - **Rajshahi-Dhulian routes** is expected to augment infrastructure in Bangladesh and reduce export cost from India.
- Five new ports of call between the two nation are –
 - Dhulian, Maia, Kolaghat, Sonamura and Jogigopha on the Indian side and
 - Rajshahi, Sultanganj, Chilmari, Daudkandi and Bahadurabad on Bangladesh side
- Two more extended Ports of Call were also included at Tribeli (West Bengal), Badarpur (Assam) on Indian side and Ghorasal, Muktarpur on Bangladesh side.

Advantages of Protocol Routes

- Strengthen bilateral trades of both countries,
- Boost NE state's economy
- Tripura can emerge as the gateway to Northeast
- Improved connectivity between the two countries

Challenges Faced By Indian Traders Using These Routes

- Dhaka charges **hefty duties on products exported from India**, even at an exorbitant rate of 80 per cent in some cases. However, India barely charges a minimum import duty for products coming in from Bangladesh.
- Tripura is allowed to **export eight products to Bangladesh** though almost none of these can be exported in proper quantities due to high duty charges.
- On the other hand, there is no bar on importing any commodity from Bangladesh.

Protocol on Transit and Trade (PTT) Through Inland Waterways

- It was first signed between the two countries in 1972.
- The Protocol was last renewed in 2015 for five years with a provision for automatic renewal and further five years of long term assurance to stakeholders.
- At present, there are 10 Indo-Bangla Protocol routes.

Elections in Gilgit-Baltistan

India has **lodged “strong protest”** against the Pakistan **Supreme Court’s order allowing elections to be held in Gilgit-Baltistan**. India maintains that Pakistan’s institutions have **“no locus standi on territories illegally and forcibly occupied by it**.

Background

- The Pakistan Supreme Court was approached by its Central government with the plea to amend the Government of Gilgit-Baltistan Order, 2018.
- The 2018 order has no provision for appointment of an interim setup and holding Assembly elections. The last elections in 2015 were held under the Gilgit Baltistan Order of 2009.
- The current term of the provincial government was scheduled to expire in June, with the current provisions providing a period of 60 days to hold an election.
- The Pakistan’s SC has allowed the amendment to the 2018 order to set up a caretaker government and conduct provincial Assembly elections.

Current Political Structure In Gilgit-Baltistan

- After 1971 war, Pakistan carved out a separate region of Gilgit-Baltistan, renamed it as Northern Territory and placed it under direct rule of the federal government.
- Today, Gilgit-Baltistan has a **legislative assembly with limited powers**. It is governed by the Ministry of Kashmir Affairs and Gilgit Baltistan in the government of Pakistan.
- The real power resides in a council headed by the prime minister of Pakistan.
- In 1994, **Indian Parliament adopted a resolution** reiterating that Gilgit-Baltistan and PoK are Indian territories occupied illegally by Pakistan.
- **In 2017, the British Parliament, too, adopted a resolution** stating that Gilgit-Baltistan legally belongs to India by virtue of accession of princely state of Jammu and Kashmir to India.

Genesis of Gilgit-Baltistan Dispute

- In 1935, the British had had taken Gilgit Agency on a lease of 60 years from the Jammu and Kashmir maharaja.
- Before exiting India, the British cancelled the lease and handed back the region to the maharaja. The security arrangement was to remain in place till an alternative was found.
- When Pakistan invaded Kashmir Valley in October 1947, the British administrator Major William Brown revolted with the help of one influential Subedar Major Babar Khan.
- The rebels sent a message to Karachi to occupy Gilgit Wazarat and Gilgit Agency proclaiming on their own accession to Pakistan for which no document was signed.
- Pakistan, thus, occupied Gilgit-Baltistan by the treachery of British officers of the Gilgit Scouts.

Importance of Gilgit-Baltistan

- It borders China in the North, Afghanistan in the west, Tajikistan in the north west and Kashmir in the south east.
- China-Pakistan Economic Corridor (CPEC) also passes through this region.
- Three of the world's longest glaciers outside the polar regions are found in Gilgit-Baltistan.

India Brings Areas In PoK Under Its Weather Forecast

- The India Meteorological Department's regional weather centre has started including **areas in Pakistan-occupied-Kashmir in its weather forecasts**.
- The weather department has started including Jammu and Kashmir, and **Ladakh's Northern Areas (Gilgit-Baltistan) and Muzaffarabad**, which are under Pakistan's illegal occupation, under the Jammu and Kashmir meteorological sub-division since May 5, 2020.
- These areas in Pakistan-occupied Kashmir have now found a place in the overall forecast of India's northwest division.
- The **northwest division consists of nine sub-divisions** - Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Delhi-Chandigarh-Haryana, Punjab, east Uttar Pradesh, west Uttar Pradesh, east Rajasthan and west Rajasthan.
- The inclusion of these areas in the forecast comes amid news that Pakistan's Supreme Court is illegally allowing elections in Northern Areas (Gilgit-Baltistan).

Online Summit of NAM Contact Group

- PM Modi participated in the online Summit of Non Aligned Movement (NAM) Contact Group to discuss response to the ongoing COVID-19 pandemic crisis.
- **Hosted by** - the current Chairman of NAM, President of Azerbaijan Ilham Aliyev
- **Theme** - "United against COVID-19"
- Objective of the Summit:
 - To promote international solidarity in the fight against the COVID-19 pandemic
 - To mobilise efforts of States and international organisations to address the pandemic.
- The event also commemorated the International Day of Multilateralism and Diplomacy for Peace.

Key Outcomes

- Leaders adopted a Declaration underlining the importance of international solidarity in the fight against COVID-19.
- Leaders also announced the **creation of a 'Task Force'** to identify needs and requirements of member States through the

It was the **first time that PM Modi participated in a NAM Summit** since he assumed the office in 2014.

He skipped 2016 and 2019 NAM summit and hence became the **first Indian PM to have skipped** the NAM

establishment of a common database reflecting their basic medical, social and humanitarian needs in the fight against COVID-19.

About NAM

- **Established in** – Belgrade, 1961 (First NAM Summit)
- It was created by the then heads of Yugoslavia (Josip Broz Tito), India (Nehru), Egypt (Gamal Abdel Nasser), Ghana (Kwame Nkrumah) and Indonesia (Sukarno).
- It was during the **Asia-Africa Bandung Conference held in Indonesia** (1955), that the basic idea of this group originated.
- **Purpose (As enumerated in 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.
- Largely guided by **Panchsheel Principles**
- It is the 2nd largest international organization after United Nations (UN) with 120 member states.

Digital Currency Project of China

China seems set to launch the **world's first digital currency** in coming weeks. The **People's Bank of China** (PBoC) has rolled out **pilot trials of its digital currency** beginning with *Shanghai, Chongqing, Shenzhen, Hangzhou, Suzhou and Xiong'an New Area*.

Background

- The central bank digital currency, called **digital yuan**, is officially referred to as the digital currency/electronic payment (DC/EP) project.
- The study on this project started in 2014. R&D on DC/EP started at the end of 2017.

Key Highlight

- It's **not a new currency** but a **digitised version of the existing Chinese currency yuan**, which will be disbursed via a digital wallet.
- The wallet doesn't need to be linked to any bank account or card.
- The currency will be **pegged 1:1 with fiat currency**, and is designed to **replace M0** (comprising currency issued by the PBoC less the amount held by banking institutions).
- If required, **two phones in proximity** can execute a contactless transaction, even doing away with the need for an internet connection
- Backed by the Chinese Government, this currency is much more stable than a typical cryptocurrency such as Bitcoin.

Rationale Behind This Project

- In the recent past, China has emerged as the **capital of the crypto ecosystem**, accounting for nearly 90% of trading volumes and hosting two-thirds of bitcoin mining operations.
- Although PBoC tried hard to control this, it gained no success. Finally, in 2017, the **Chinese Cabinet approved the PBoC's own digital currency development** programme.
- Hence, the current step can be seen as a **logical outcome of the efforts to curb and tackle its runaway cryptomarket practices**.

Hegemony of USD

Data from IMF suggests that, as of 2019, the USD accounted for 61 per cent of all central bank foreign exchange reserves, followed by the Euro at 20 per cent, with RMB at just 1.96 per cent.

Around 47 per cent of the global payments are in USD and it is involved in 88 per cent of foreign-exchange trading.

Impact

- **Global Recognition** - China's dissatisfaction with the dominance of the United States Dollar (USD) as the global reserve currency and its aspiration to ensure international recognition of RMB has garnered much attention to this project.
- **Reduce the dominance of the USD in trade and financial transactions** - China has been extremely wary of the punitive sanctions or the threats of exclusion (both at the country and company level) from a USD-based settlement system, and the DC/EP will **provide it with the much needed alternative**.
- In other words, it will enable China to counter the alleged "**weaponization of the dollar**".
- **Cost Saving** - Paper money comes with high handling charges and eats up 1% to 2% of GDP.
- **Improved internal Security** - By acting as a powerful **antidote for tax evasion, money laundering and terror financing**, the proposed currency can materially **boost tax revenues** while also improving financial compliance and national security.
- **Tool of financial inclusion** - Direct benefit transfers can be instantly delivered by state authorities deep into rural areas, directly into the mobile wallets of citizens who need them.
- **Strengthening of Economy** – It can provide central banks an uncluttered view and powerful insights into **purchasing patterns** at the citizen scale. In the long run, it is believed that the currency will make **cross-border payments fast and frictionless**.

Concerns

- There has been deep and abiding concern about the **relentless rise of a surveillance state** and the erosion in citizen privacy and anonymity.
- **Face-recognition technology** enables states to spy on the physical movement of citizens. In this context, concerns are being raised that the **proposed currency will be used to spy on every movement of people's money**.

Taiwan and World Health Assembly

Taiwan was lobbying hard to **join World Health Assembly (WHA) meeting as an observer** after its success with containing the coronavirus outbreak. However, it was not invited to join the assembly that was held on 18th May.

Arguments Forwarded by Taiwan

- Taiwan has been arguing that the **coronavirus pandemic has made it more urgent** than ever that it be allowed proper access to the WHO.
- As per Taiwan, its exclusion from the Assembly would harm the global response to the pandemic and cannot be excused by mere rules of procedure.
- It has been **praised over its handling of the pandemic**; the island nation of 23 million people has recorded just 438 cases of COVID-19 and six deaths.

Was Taiwan Ever A Part Of WHO

- In 1948 when the health body was created, **Taiwan was a founding member** of the WHO.
- However, it was **expelled in 1972** a year after it **lost the 'China' seat at the United Nations to the People's Republic of China**.
- **Between 2009 and 2016**, when relations were warmer, *China allowed Taiwan to attend the WHA as an observer under the name "Chinese Taipei"*.

- After **Tsai Ing-wen was elected as President** of Taiwan in 2016, things took a different turned and the relations turned sour. Tsai Ing-wen's **party sees Taiwan as a de facto independent nation**.
- She was re-elected early this year and her second term began on May 20.

International Support Garnered By Taiwan

- Taiwan is **recognized as a nation by only 15 countries**. Taiwan's bid to seek membership was **comprehensively defeated in 2007**.
- However, this time countries like Australia, Canada, Japan and New Zealand joined the US in **publicly calling for Taiwan to be given observer status at the WHA**.
- The leaders of the United States' congressional foreign affairs committees wrote to 60 'like-minded' countries asking them to support Taiwan's participation in the WHO.

India's Stand

- India has a **growing relationship with Taiwan** but a much larger relationship with China.
- Traditionally India **supports One-China policy** and considers **Taiwan a part of China**.
- India had not taken a stand publicly. However, it had been in conversation with some of Taiwan's advocates as well.

Afghan Power-sharing Deal

Afghan President Ashraf Ghani and political rival Abdullah Abdullah have signed a power-sharing agreement.

Key Highlights

- Mr. Ghani would remain President of the war-torn nation.
- Abdullah will lead the High Council of National Reconciliation (HCNR) with executive authority.
- The Reconciliation Council has been given the authority to **handle and approve all affairs related to Afghanistan's peace process**.
- Both Mr. Ghani and Mr. Abdullah will choose an **equal number of ministers** in the **cabinet**.

India's Stand On This Deal

- India welcomed the power-sharing deal announced by Afghanistan, which ended months of political discord.
- India has consistently supported inclusive governance, national unity, strong institutions, constitutional order, rights of all sections of society and the territorial integrity of Afghanistan.
- It should be remembered that Afghanistan has become the **second-largest recipient of Indian foreign aid over the last five years**.

Significance of This Deal

- Afghanistan has been in **political disarray since** the country's Election Commission in December announced Mr. Ghani as winner. **This deal has ended this discord**.
- A peace agreement between the US and the Taliban was signed in February 2020. Since then, USA has been trying to get the Taliban and the Afghan government to begin **intra-Afghan negotiations**.
- However, the political turmoil and personal acrimony between Ghani and Abdullah impede talks. This deal will **kickstart the negotiations with Taliban** which were to take place in March.

Background

- Ghani was declared the winner of **Afghanistan's 2019 presidential polls in September** by that country's Election Commission.
- However, Abdullah, refused to accept the results and proclaimed victory for himself.
- Mr. Ghani and Mr. Abdullah both declared themselves president in parallel inauguration ceremonies in March 2020.

New Security Law for Hong Kong

A draft resolution **pertaining to a new security law for Hong Kong** has been backed by the Parliament of China. The new law would **make it a crime to undermine Beijing's authority** in the territory.

Current Status Of The Bill

- The National People's Congress (NPC) backed the security bill resolution.
- Now it has been passed to the Standing Committee of the Communist Party which will **draw up the full details of the new law**.

Political System of Hong Kong: Background

- Hong Kong has its own currency, political system and cultural identity but it belongs to China.
- The city was a **colony and territory of the United Kingdom** for more than 150 years, until the British **handed it back over to China in 1997**.
- At the time of handover, *in order to maintain Hong Kong's prosperity, and its legal system and culture*, the Chinese Communist leadership had agreed to a unique arrangement – **"One Country, Two Systems"**.
- Under the policy, Hong Kong maintains a de-facto constitution, known as the **Hong Kong Basic Law**.
- Basic Law allows Hong Kong to **enjoy executive, legislative and independent judicial power**, including that of final adjudication, **barring matters of defence and foreign affairs**.
- It guarantees freedoms that **are unavailable to Chinese mainlanders**, such as the **right to protest, the right to a free press and freedom of speech**.
- The Basic Law states that Hong Kong "*shall safeguard the rights and freedoms of the residents for 50 years after the handover*".
- But in recent years, Beijing has repeatedly reinterpreted the Basic Law and now it says it has **"complete jurisdiction" over Hong Kong**.

About the New Security Bill:

- The bill is **expected to criminalise**:
 - Secession - breaking away from the country
 - Subversion - undermining the power or authority of the central government
 - Terrorism - using violence or intimidation against people
 - Activities by foreign forces that interfere in Hong Kong
- It allows **China to have its own law enforcement agencies in Hong Kong**, alongside the city's own.

Criticism Of This Bill

- The bill in itself goes **against Article 23 of the Basic law**. Article 23 of the Basic Law, requires the *Hong Kong government to enact national security legislation on its own*.
- The new law might result into the **curtailment of several freedom** hitherto available to the people of Hong Kong. For example, the law could see **people punished for criticising Beijing** - as happens in mainland China.
- Some pro-democracy activists have been **lobbying foreign governments to help their cause**. Such campaigning **could be a crime in the future**.
- Analysts worry that a **threat to Hong Kong's liberties could affect its attractiveness** as a business and economic powerhouse.

Legal Hurdles in front of China

- Article 18 of the Basic Law says that the Chinese laws **can't be applied in Hong Kong unless they are listed in a section called Annex III**.
- Experts believe that for any national laws to be included in this annex, it must go through Hong Kong's parliament.
- However, few experts believe that **these laws can be introduced by decree**, bypassing the city's parliament. If this happens, it would amount to a **breach of that "one country, two systems" principle**.
- Also, the **values underlying the criminal justice system in two jurisdictions are so different** that any criminal law should only be enacted by Hong Kong, not by the mainland China.

US Discussed Conducting Its First Nuclear Test in Decades

- The Trump administration has discussed whether to conduct its first nuclear test explosion since 1992. Although, the meeting **did not conclude with any agreement** to conduct a test, but the proposal is very much an ongoing conversation.
- The United States has not conducted a nuclear test explosion **since September 1992**.

Why US Wants To Conduct The Test?

- According to US, Russia and China are conducting low-yield nuclear tests. Hence, USA wants to demonstrate to Moscow and Beijing that the it could go for rapid test.
- The main purpose of nuclear tests has long been to check the **reliability of an existing arsenal or try out new weapon designs**.
- The Trump administration has said that, it isn't pursuing new nuclear weapons but *reserves the right to do so if the two countries refuse to negotiate on their programs*.
- Also, these tests would be **useful from a negotiating standpoint** as **Washington seeks a trilateral deal** to regulate the arsenals of the biggest nuclear powers.

Criticism

- It would be the starting gun to an unprecedented nuclear arms race.
- It would also disrupt the **negotiations with North Korean leader Kim Jong Un**, who may no longer feel compelled to honor his moratorium on nuclear testing.

Postal Stamp Released on 40th Anniversary of Smallpox Eradication

- WHO has released smallpox commemorative postal stamp to celebrate the 40th anniversary of smallpox eradication.

India & Smallpox

In 1974, India was one of the highly affected countries in the world. It had over 86% of world small pox cases. With the help of WHO, India started "Target Zero".

- The stamp has been **developed by the United Nations Postal Administration (UNPA)**, in collaboration with WHO.
- Smallpox is the **first and the only human disease** that has been **eradicated** on a global scale.
- WHO smallpox eradication campaign was initiated in 1967. It was during **33rd World Health Assembly in May 1980** that the official declaration **regarding eradication of small pox was made**.
- **Smallpox** was an infectious disease caused by one of two **virus** variants, **Variola major** and **Variola minor**. Other historical names for the disease include **pox, speckled monster, and red plague**.
- Edward Jenner (1749 – 1823) was an English physician who was a contributor to the development of the **smallpox vaccine**.

Proposal to Expand G7 Summit

- The United States and the United Kingdom both have proposed the expansion of the G7 grouping.
- Although, there are two different proposals for the expansion, the motive is rather one - to keep China at bay and to contain and isolate Beijing.

Proposals

- The United States has proposed **G7+4** and plans to invite **Russia, South Korea, Australia and India**.
- On the other hand, the United Kingdom **wants a G7+3**, calling it '**10 Democracies (D10)**' which excludes Russia.

Reasons For This Proposal

- USA believes **G7 has become an “outdated” group** that needs to incorporate other important and emerging democracies. It also wants to counter China.
- The United Kingdom government, on the other hand, wants to counter **China’s monopoly in the 5G sphere** and create alternative suppliers of 5G equipment and other technologies to avoid relying on Beijing.
- The UK is collaborating **with a number of international partners** on a range of issues including cybersecurity.

UK & 5G Issue

- Few months back, UK **granted Huawei a limited role in supplying kits for the UK’s 5G networks** and capped its market share to 35 per cent.
- At that time, **UK also opposed a US-led drive to ban Huawei** from entering the 5G sector.
- However, owing to potential national security concerns, UK is drawing up a plan to phase out Huawei from UK’s 5G networks in the next three years.

About G7

- G7 originally came into **being in 1975** when the heads of the **world's six leading industrial nations**- the US, UK, France, Germany (West), Japan and Italy decided to hold a meeting in the wake of the oil shock of 1973 and the following financial crisis.
- The **six countries were joined by Canada** in 1976.

G7 summit Postponed

- US has **postponed the G7 Summit** till September.
- The summit was scheduled to be held through June 10-12 at Camp David in the US.
- In view of the pandemic, there were talks of the summit being held virtually.
- However, Trump had been suggesting that it be held in person.
- The **United States holds the presidency of the G7 this year**.
- Presidents in the past are known to invite heads of states or heads of governments of one or two countries to attend the summit as special invitees.
- Last year, in Biarritz (France), **India was invited as a special guest** by France.

- In 1998, Russia was formally inducted in the group, which transformed G7 into G8.
- However, when **Russia annexed Crimea** in 2014, it was suspended from the grouping. As a result, the group became **G7 again in 2014**.
- **Current members are** - US, UK, Canada, France, Germany, Italy and Japan (Most developed and the advanced economies of the world)

E-Conclave for Defence MSMEs

- **Chaired by** - Union Defence Minister Rajnath Singh
- **Organised by** - Confederation of Indian Industry (CII), Society of Indian Defence Manufacturers (SIDM) and Department of Defence Production.
- **Theme** - 'Business Continuity for MSMEs in Defence & Aerospace Sector'

Why This Conclave Holds Significance?

- Focus has been shifted towards the **indigenization of defence raw materials** to boost its defence production.
- To stimulate economic growth during COVID-19 crisis, government has announced **Atma Nirbhar Bharat Abhiyan**.
- Recently, Indian Air Force has cancelled its three main projects of buying aircrafts from foreign countries.
- In May 2020, the Ministry of Defence approved **procurement of 26 defence items only from local suppliers** to boost "Make in India" initiative. After this, a **total of 127 items have been notified** by MoD where **purchase preference is given to local suppliers**.
- Also, India wants to achieve its **target of 25 billion defence production** by 2025.
- Against this backdrop, the role of MSMEs in not only reviving the economy but also in achieving the goal of Atma Nirbhar Bharat become significant.

MSME in Defence Sector

- There are more than **8,000 MSMEs**, tiered **partners of many of defence organisations – Ordnance factories, DPSUs and service organisations**.
- They contribute more than **20 per cent of the total production** of these organisations."

The Resistance Front

- The Resistance Front (TRF), a **new terror group** in Jammu and Kashmir, was launched recently.
- It mainly aims at radicalisation and recruitments for the Lashkar-e-Tayiba. This terror group is looking to fill in the space left by the Hizbul Mujahideen, which has been losing its top terrorists at a rapid pace.

National Anti Terrorism Day

- Celebrated on May 21 every year
- On this day, India's seventh Prime Minister Rajiv Gandhi was assassinated.

Why A New Militant Outfit

- After the abrogation of Jammu Kashmir's special status, Pakistan was under pressure to do something from its constituency in Kashmir.
- But with **FATF (Financial Action Task Force) timelines** on the back of its mind, it has decided to **cast a new militant outfit that is secular in its name**.
- The new name has secularised the Kashmir militancy and make it appear indigenous.

How It Is Different?

- The **structuring of this group** and the **manner in which it is controlled** from Pakistan clearly suggests that they want a zone-wise targeting in Kashmir.
- The outfit has a **mix of both local and foreign militants** so that it looks indigenous.
- Unlike local militants, who have no training, these new militants seem to have trained hard.
- It is also running a very aggressive online campaign to bring in as many youths as possible.

ICUBE 2019 Report

- Leading data consulting company – Kantar has released its ICUBE **2019 report on digital adoption and usage trends in India.**
- The annual tracking study; considered to be the currency for digital adoption in the country, gauges the changing digital ecosystem in India, measuring internet usage by demographic, activity and device segments.

Key Findings

- Estimated at 574 million, the number of **monthly active Internet users** have registered an annual growth of 24% indicating an **overall penetration of 41%.**
- The report projects **11% growth for 2020**; estimates 639 million monthly active Internet users.
- **More children on the Internet than ever before** - At 38% growth year on year, school going children segment in the age group of 15 years or below has shown a promising growth on the internet usage.
- **Rural masses continue to propel India's digital revolution** - Rural India registered a **45% growth** in the monthly active internet users in 2019.
- It is now estimated that there are 264 million internet users in rural India, and this is expected to reach 304 million in 2020.
- Local language and video are the underlying factors for the internet boom in rural.

Factors On Which Future Growth Of Internet Will Depend:

- Children and housewives will be the new Internet adopters in the next year or two.
- Video, Voice and Vernacular (3Vs) will be significant usage factors for the Internet users.
- IOT and Smart Devices will make the internet as much a household phenomenon as it is an individual phenomenon.

Indian Army's Only Cavalry Unit

The government has approved a proposal to equip the 61st Cavalry with tanks. With this, one of the world's last remaining horse-mounted cavalry regiments will have to say goodbye to its horses.

Why The Change

- The famous 61st Cavalry is being converted into a regular armoured regiment on the basis of a recommendation made by the Shekatkar committee.
- The committee gave its proposal on sharpening the **army's combat edge and trimming its revenue expenditure.**

Reasons Cited by the Committee

- The unit has not **taken part in any operation during the last 25 years.** Nowhere in the world is playing polo or taking part in equestrian sports the main occupation of any army unit.

- It makes more sense to assign the 61st Cavalry an operational role rather than limiting it to ceremonial functions and sporting events.

About 61st Cavalry

- It **was raised in Jaipur in October 1953** by putting together mounted elements of cavalry regiments of the erstwhile princely states of India.
- Rich in sporting history, the regiment accounts for one Padma Shri, 10 Arjuna Awards, 11 Asian Games medals and a raft of representations at Polo World Cup & international equestrian competitions.
- It has been a part of the **annual Republic Day parade for several decades**.

Global Forest Resources Assessment (FRA) 2020

- The FRA 2020 was released by the **United Nations Food and Agriculture Organization (FAO)**.
- It provides essential information for understanding the extent of forest resources, their condition, management and uses. It examined the status of, and trends in, more than 60 forest-related variables in 236 countries and territories in the period 1990–2020.

FRA 2020 Key Findings

- **Forests Cover**
 - The world has a total forest area of 4.06 billion hectares (ha), which is 31 % of the total land area.
 - The tropical domain has the largest proportion of the world's forests (45 %), followed by the boreal, temperate and subtropical domains.
 - More than half (54%) of the world's forests is in only five countries – the Russian Federation, Brazil, Canada, USA, and China.
- **World's Forest Area Is Decreasing, But Rate Of Loss Has Slowed:**
 - The world has lost 178 million ha of forest since 1990, which is an area about the size of Libya.
 - The rate of net forest loss has decreased substantially over the period 1990–2020 due to reduction in deforestation in some countries, plus increases in forest area in others through afforestation and the natural expansion of forests.
- **Africa has the highest net loss of forest area** in 2010–2020, followed by South America. **Asia had the highest net gain of forest area** in 2010–2020, followed by Oceania and Europe. Nevertheless, both Europe and Asia recorded substantially lower rates of net gain in 2010–2020 than in 2000–2010.
- **Deforestation continues, but at a lower rate:** An estimated 420 million ha of forest has been lost worldwide through deforestation since 1990, but the rate of forest loss has declined substantially.
- **More than 90% of the world's forests have regenerated naturally:** 93% percent of the forest area worldwide is composed of naturally regenerating forests and 7% is planted. The area of naturally regenerating forests has decreased since 1990 (at a declining rate of loss), but the area of planted forests has increased by 123 million ha. The rate of increase in the area of planted forest has slowed in the last ten years.
- **Plantations account for about 3% of the world's forests:** The highest percent of plantation forests were in South America while the lowest were in Europe.
- **More than 700 million ha of forest is in legally established protected areas:** South America had the highest share of forests in protected areas, at 31%. The area of forest in protected areas globally increased by 191 mha since 1990, but the rate of annual increase slowed in 2010–2020.

- **Primary forests cover about 1 billion ha:** The area of primary forest has decreased by 81 million ha since 1990, but the rate of loss more than halved in 2010–2020 compared with the previous decade. Combined, three countries – Brazil, Canada and the Russian Federation – host more than half (61 percent) of the world’s primary forest.
- **Total forest carbon stock is decreasing:** Most forest carbon is found in the living biomass (44 percent) and soil organic matter (45%), with the remainder in dead wood and litter. The total carbon stock in forests decreased from 668 gigatonnes in 1990 to 662 gigatonnes in 2020.
- **The world’s forests are mostly publicly owned,** but the share of privately owned forests has increased since 1990.
- **About 30% of all forests is used primarily for production** of wood and non-wood forest products.
- **About 10% of the world’s forests is allocated for biodiversity conservation.** However, the rate of increase in the area of forest designated primarily for biodiversity conservation has slowed in the last ten years.
- The area of forest designated primarily for soil and water protection is increasing.
- More than 180 million ha of forest is used mainly for social services such as recreation, tourism, education research and the conservation of cultural and spiritual sites.

World Migratory Bird Day (WMBD)

- World Migratory Bird Day is observed on May 9 every year. The theme of World Migratory Bird Day 2020 is “**Birds Connect Our World**”. This year's theme was chosen in order to highlight the importance of conservation and restoration of ecological connectivity and integrity of ecosystems that support the movement of these birds.
- The day was **first introduced in 2006** after the Secretariat of **Convention on the Conservation of Migratory Species of Wild Animals** and the Secretariat of Agreement on the **Conservation of African-Eurasian Migratory Waterbirds (AEWA)** came up with a proposal.

Convention on Migratory Species (CMS)

- The CMS is an **environmental treaty of the UN** that provides a global platform for the conservation and sustainable use of migratory animals and their habitats.
- It is the **only global convention specialising in the conservation of migratory species**, their habitats and migration routes.
- The pact was signed in 1979 in Germany and is **known as the Bonn Convention**
- **Appendices of CMS**
 - i) Appendix I of the Convention lists ‘**Threatened Migratory Species**’.
 - ii) Appendix II lists ‘**Migratory Species requiring international cooperation**’.

India and CMS

- **India has been a party to the CMS** since 1983. India hosted the 13th Conference of the Parties (COP13) of the CMS in February, 2020 at Gandhinagar in Gujarat.
- The Indian sub-continent is also part of the major bird flyway network, i.e, the **Central Asian Flyway (CAF)** that covers areas between the Arctic and Indian Oceans, and covers at least 279 populations of 182 migratory water-bird species, including 29 globally threatened species.
- India has also launched the **National Action Plan for the conservation of migratory species** under the Central Asian Flyway”.

- India had **non-legally binding** MoUs with the CMS on the conservation and management of Siberian Cranes (1998), Marine Turtles (2007), Dugongs (2008) and Raptors (2016).

Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)

- It is an **intergovernmental treaty** dedicated to the conservation of **migratory waterbirds** and their habitats **across Africa, Europe, the Middle East, Central Asia, Greenland and the Canadian Archipelago**.
- Currently 79 countries and the European Union (EU) have become a Contracting Party to AEWA.
- It is developed under the **framework of CMS** and administered by the **United Nations Environment Programme (UNEP)** to establish coordinated conservation and management of migratory waterbirds throughout their entire migratory range.
- AEWA **covers 255 species of birds ecologically dependent on wetlands** for at least part of their annual cycle.

Llama

- The researchers linked two copies of a special kind of antibody produced by Llamas and created a new antibody, which binds to a key protein on the novel coronavirus SARS-CoV2.
- This protein is the spike protein, shaped like a corona (crown) that gives coronaviruses their name. It is also the protein that allows the virus to break into human and animal cells.
- Initial tests with the new antibody and cultured cells indicated the antibody blocks viruses with this spike protein from infecting cells.

About Llama

- Llama, (*Lama glama*) is a South American member of the **camel family, Camelidae** (order Artiodactyla). Unlike camels, lamoids **do not have the characteristic camel humps**; they are slender-bodied animals and have long legs and necks, short tails, small heads, and large, pointed ears.
- **Geographic Range:** Llamas have a native range all along the **Andes mountains**, but are not found in the wild. It can be found commercially throughout North America, Europe and Australia.
- Llamas have an unusually **high content of haemoglobin in their bloodstream** and oval shaped red blood corpuscles, both of which are adaptations for surviving in an oxygen-poor, high altitude environment.
- Native peoples have used llamas as **pack animals** for centuries.



Sal Forest Tortoise

- A recent study by ecologists in the Wildlife Institute of India, Dehradun, finds that over **90% of the potential distribution of the Elongated Tortois falls outside current protected area's network**.
- Also, in northeast India, the representation of the species in protected areas is least, and there is little to no connectivity among most of the protected areas where the species is present.
- **As per IUCN, Protected areas are those in which human occupation or at least the exploitation of resources is limited. There are several kinds of protected areas, which vary by level of protection depending on the enabling laws of each country or the regulations of the international organizations involved. These include national parks, wildlife sanctuaries, Marine Protected Areas etc.**

About Sal Forest Tortoise

- Sal Forest Tortoise is also known as the Elongated tortoise (Indotestudo elongata).
- **Threats**
 - In northeast India, which is a suitable habitat for the species, they experience **jhum fire**. It not only directly kill the animals but also open up habitats, which, in turn, increases the chance of people finding the tortoise easily. Forest fires also perturb soil moisture which may impact forest floor thus changing the whole community on which the reptiles depend.
 - It is **heavily hunted for food** and is collected both for local use, such as **decorative masks, and international wildlife trade**.
- Conservation Status: **Critically Endangered (EN)** under the IUCN Red List of Threatened Species.
- **Population:** There is little information on the population sizes of the sal forest tortoise, or any such species, mainly because they are so rare, live in remote areas of the forest and funding opportunities to study them are few. According to the IUCN the population of the species may have fallen by about 80% in the last three generations (90 years).
- **Distribution:** The sal forest tortoise is widely distributed over eastern and northern India and Southeast Asia.



Coal Washing

The Environment ministry amended the Environment Protection Act to **remove mandatory washing of coal** for supply to thermal power plants.

What Is Coal Washing

- Coal that comes from a mine is a complex mixture of materials. In addition to the coal itself, pieces of rock, sand and various materials are contained in the mixture. Thus, before coal can be sold to consumers, it must be cleaned.
- Coal washing involves using **water and mechanical techniques** and relies on **gravity and the difference of density between coal and its' impurities**, which are usually more densely packed due to the fact that they are inorganic.
- Washing coal **increases its efficiency and quality**, therefore increasing its price. Coal washing can also help to **reduce emissions from burning**.

Government Regulations Regarding Coal Washing

- In 2015, as part of its climate-change commitments, the government had made **coal washing mandatory for supply to all thermal units more than 500 km from the coal mine**. This was in keeping with India's stand to **not reduce coal consumption but rather focus on emission control**.
- The Ministry, in its guidelines issued the same year, said "power stations located 500-750 km, 750-1,000 km would be supplied coal with **ash content not exceeding 34 per cent** on a quarterly average basis w.e.f January 01, 2016". It asked the **coal companies to supply washed/blended or beneficiated coal**.
- According to industry calculations, **washing improves the quality of coal by reducing ash content to 33-34 %** from the earlier 40-45 in average Indian coal.

Reasons For The Amendment

- The Ministry is of the view that the requirement of maintaining an average ash content of 34 per cent **prompts industries to import, resulting in an outflow of foreign exchange.**
- Another reason for doing away with coal washing is it **did not bring down the ash content in coal.**
- The Ministry has instead directed thermal power plants to install the technology for handling ash content and also source coal domestically. Earlier the Ministry had advocated pollution-control technologies such as **Flue Gas Desulphurization (FGD)** at the end of power generation units. Several industry executives had contested it, saying it was not an alternative to coal washing.
- FGD at thermal stations is mandatory under the new emission control norms, 2015. A report by the Centre for Science & Environment (CSE) recently said 70% of India's coal-powered capacity would miss the FGD deadline of 2022.

BS VI Emission Norms For Quadricycles

- The government has notified **BS-VI emission norms for quadricycles**, paving the way for higher production of the **new category of vehicle that was introduced less than two years ago.**
- This notification completes the process of BS-VI for all two and three wheelers, quadricycles, passenger vehicles and commercial vehicles in India. The emission norms are on the lines of the European Union's World Motorcycle Test Cycle (WMTC).
- India's automobile industry has been urging the ministry to set BS-VI emission standards for quadricycles, after the norms were rolled out for other segments starting 1 April, 2020.

What Is Quadricycle

- A quadricycle is the **size of a three-wheeler but with four tyres and is fully covered like a car.** It has an engine like that of a three-wheeler. This makes it a cheap and safe mode of **transport for last-mile connectivity.**
- A quadricycle cannot be more than 3.6 metres long, should have an engine smaller than 800cc, and should not weigh more than 475 kilograms.
- **In 2018, the government had introduced the quadricycle segment** with necessary standards to produce the vehicle for both commercial and private use.



Additional Information

BS-VI Norms

- The Bharat Stage emission standards are standards instituted by the government to **regulate the output of air pollutants from motor vehicles** from internal combustion engine equipment, including motor vehicles.
- India has been following European (Euro) emission norms, although with a time lag of five years. The BS IV norms had been enforced across the country since April 2017. In 2016, the Centre had announced that the country would skip the BS-V norms altogether and adopt BS-VI norms by 2020.
- The central government has **mandated that vehicle makers must manufacture, sell and register only BS-VI (BS6) vehicles from April 1, 2020.**

Difference Between BS-IV and BS-VI

- The main difference in standards between the existing BS-IV and the new BS-VI auto fuel norms is the **presence of sulphur.**
- The **BS-VI fuel is estimated to bring around an 80 % reduction of sulphur**, from 50 parts per

million to 10 ppm. According to analysts, the emission of NO_x (nitrogen oxides) from diesel cars is also expected to come down by nearly 70 % and 25 % from cars with petrol engines.

Cicadas

A brood of periodical cicadas, noisy insects that breed underground for as long as 13-17 years, are expected to emerge into some states on the east coast of the US this year.

What Are Cicadas

- Cicadas are **insects that spend most of their lives underground** and emerge from the soil mainly to mate. Once out of the ground, their life span is fairly short, somewhere between two-four weeks.
- There are three species of 17-year cicadas and three species of 13-year cicadas. The name 13 and 17 year refers to the number of years that cicada nymphs take to reach adulthood.
- While being underground, the nymphs feed on sap from plant roots. After this developmental period, the cicada nymphs construct a “cicada hut” and burrow their way out from the soil and climb onto any nearby tree or vegetation.



What Happens When Cicadas Emerge

- After emerging from the ground in billions, the cicadas shed their exoskeletons or outer skins to take their winged form. Their exoskeletons are frequently found attached to tree trunks and twigs.
- **Male cicadas “sing” to attract the females**, the collective chorus of these male cicadas is very loud and can reach up to 100 decibels, which is as much as a powered lawnmower.
- After mating, the females lay their eggs in twigs. One female is capable of laying over 400 eggs in 40-50 different sites.
- **The egg-laying by the cicadas causes significant damage to small twigs.** They damage many ornamental and hardwood trees, especially newly planted fruit and ornamental trees such as apple, dogwood, peach, cherry and pear among others, which are the most seriously damaged.

Puntius Sanctus

- Puntius Sanctus, a **new species of small freshwater fish** of the family Cyprinidae has been found in Venlankanni, Tamil Nadu.
- The Puntius species are **locally known as ‘Paral’ in Kerala and ‘Kende’ in Tamil Nadu.** It is a small, silver-hued fish which grows to a length of 7 cm. It is used both as food and as an aquarium draw.
- The new fish is now deposited in Government of India museum (Zoological Survey of India) at Pune. It has also been registered with **ZooBank of the International Commission of Zoological Nomenclature.**



Additional Information

The International Commission on Zoological Nomenclature (ICZN)

- Founded in 1895, its task is to create, publish and, periodically, revise the **International Code of**

Zoological Nomenclature which provides a **standard framework by which animals are named.**

- A uniform system of zoological nomenclature ensure that every animal has a unique and universally accepted scientific name. **ZooBank is the official registry of Zoological Nomenclature.**
- The Commission currently comprises 25 members from 18 countries. The work of the Commission is supported by a Secretariat based at the Lee Kong Chian Natural History Museum in Singapore.

Zoological Survey of India (ZSI)

- The ZSI, **headquartered in Kolkata**, is the premier taxonomic research organization in India. It was established on 1 July 1916 to promote surveys, exploration and research leading to advancement of our knowledge of various aspects of the exceptionally rich animal life of India
- **Objectives:**
 - Exploration, Survey, Inventorying and Monitoring of faunal diversity in various States, Ecosystems and Protected areas of India.
 - Periodic review of the Status of Threatened and Endemic species.
 - Preparation of Red Data Book, Fauna of India and Fauna of States.
 - Conducting bioecological studies on selected important communities/species and faunal identification, advisory services & library services.

3 New Plant Species Discovered In Western Ghats

A team of scientists of the Botanical Survey of India (BSI) have reported the discovery of three new plant species from the Western Ghats in Kerala and Tamil Nadu.

About The New Plant Species

- **Eugenia sphaerocarpa** (Myrtaceae or Rose apple family)
 - A good population of Eugenia sphaerocarpa is growing in the Kakkayam area of the **Malabar wildlife sanctuary in Kerala** above 800 m.
 - The specific epithet ‘sphaerocarpa’ denotes to the large, showy lemon-yellow spherical fruits. The fruits of Eugenia species are known for their palatability and many of them are harvested from the wild with some under cultivation.
- **Goniothalamus sericeus** (Annonaceae family of custard apple)
 - It has been found in the **Kanyakumari wildlife sanctuary in Tamil Nadu.**
 - The specific epithet ‘sericeus’ refers to the presence of dense silky hair on the petals.
- **Memecylon nervosum** (Melastomataceae (Kayambo or Kaasavu in local parlance) family)
 - It was also found in the Kanyakumari wildlife sanctuary in Tamil Nadu at an altitude between 700-900 m.
 - The epithet ‘nervosum’ alludes to the presence of prominently raised lateral and intramarginal veins on the lower surface of the lamina.
 - The species has showy purplish-blue flowers



Eugenia sphaerocarpa.



Goniothalamus sericeus.



Memecylon nervosum.

Botanical Survey of India (BSI)

- The BSI, headquartered in Kolkata, was established in 1890 with the objectives of exploring the plant resources of the country and identifying plant species with economic virtue.
- **Objectives**
 - Undertaking intensive floristic surveys and collecting accurate and detailed information on the occurrence, distribution, ecology and economic utility of plants in the country.
 - Collecting, identifying and distributing materials that may be of use to educational and research institutions.
 - Acting as the custodian of authentic collections in well planned herbaria and documenting plant resources in the form of local, district, state and national flora.

Gharials

Forty gharials (*Gavialis gangeticus*) were released in the Ghaghara river by the Bahraich forest division of Uttar Pradesh.

About Gharials

- Gharials, sometimes called gavials, are a **type of Asian crocodilian** distinguished by their long, thin snouts.
- **Habitat:** Gharials live in **clear freshwater river systems**, congregating at river bends where the water is deeper. They're not well-suited for land so they generally only leave the water to bask in the sun or to nest.
- **Population:** A major chunk of gharials in India is found in the **Chambal river**, which has about 1,000 adults. The Ghaghara also acts as an important aquatic corridor for gharials in Uttar Pradesh.
- **Conservation Status**
 - Gharials are **critically endangered** in the International Union for Conservation of Nature Red List of Species.
 - It is also listed under **Schedule I of the Wild Life (Protection) Act, 1972.**
- **Threats to Survival:** The biggest threats it faces are related to human activities. Since the 1940s, the gharial's numbers have declined as much as 98 % due to hunting for traditional medicine and drastic changes to their freshwater habitats.
 - For instance, people have manipulated the flow of rivers, causing certain areas to dry out and making it more difficult for water-reliant gharials to survive.
 - Young gharials are also susceptible to being caught in fishing nets, which can lead to injury or drowning.
- Unlike crocodiles, gharials do not pose any danger to humans. Gharials do not stalk and lunge at prey like other crocodilians—their snouts contain sensory cells that can detect vibrations in the water. By whipping their heads from side to side, the animals zero in on fish and grab them in their jaws. While adults eat fish, their offspring also eat insects, crustaceans, and frogs.



Charru Mussel (Mytella strigata)

- Charru mussel, an **invasive mussel native to the South and Central American coasts**, is spreading quickly in the backwaters of Kerala elbowing out other mussel and clam species and threatening the livelihoods of fishermen engaged in molluscan fisheries.
- Externally, it resembles the green and brown mussels (kallummekka in Malayalam), but is much smaller in size. Its colour varies from black to brown, purple or dark green.
- The rapid spread of the Charru mussel may have been triggered by **Cyclone Ockhi** which struck the region in 2017.
- With a population as high as 11,384 per sq metre here, it has **replaced the Asian green mussel (*Perna viridis*) and the edible oyster *Magallana bilineata*** (known locally as muringa).
- Though this smaller mussel is edible, the overall economic loss and impact on biodiversity is much bigger.
- In all probability, the mussel **reached the Indian shores attached to ship hulls or as larval forms in ballast water discharges.**



Black Panther

- A black panther was captured on camera for the “first” time at Patiem beat in **South Goa’s Netravali wildlife sanctuary.**
- Black panther is not a different species but a **colour variant of the spotted Indian leopard.** Sometimes, it is also called melanistic leopard due to its complete dark phenotype.
- The dark big cat is usually shy just like other spotted members of its family but is comparatively **difficult to detect.** The sightings are extremely rare because these are the creatures of dark and generally do not come out in the daylight.
- Its dark hide camouflages it perfectly in the deep areas of forests where light penetration is low. This provides it with a selective advantage while hunting as the prey is unable to detect its presence easily in dark forests.



Pinanga Andamanensis

- Scientists of the Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI) are conserving the germplasm of *Pinanga andamanensis* to ensure its continued survival.
- It is a **critically endangered species** and one of the least known among the **endemic palms of the Andaman Islands.**
- The name is derived from ‘Penang’, the modern-day Malaysian state. “Penang itself has its origins in ‘Pulau Pinang’, which means ‘Island of the Areca Nut Palm’.
- Its entire population of some 600 specimens naturally occurs only in a tiny, evergreen forest pocket in **South Andaman’s Mount Harriet National Park.**



World Bee Day

- To raise awareness of the **importance of pollinators**, the threats they face and their contribution to sustainable development, the **UN designated 20 May as World Bee Day**.
- The goal is to strengthen measures aimed at protecting bees and other pollinators, which would significantly contribute to **solving problems related to the global food supply and eliminate hunger in developing countries**.
- Pollinators such as bees, birds and bats, **affect 35 % of the world's crop production**, increasing outputs of 87 of the leading food crops worldwide, plus many plant-derived medicines.

Why 20 May

20 May coincides with the birthday of Anton Janša, who in the 18th century, pioneered modern beekeeping techniques in his native Slovenia and praised the bees for their ability to work so hard, while needing so little attention.

International Day for Biological Diversity

- The United Nations has proclaimed May 22 as the International Day for Biological Diversity (IDB) to increase understanding and awareness of biodiversity issues.
- 2020 Theme: *“Our Solutions Are In Nature”*
- On this occasion, Union Minister of Environment launched some key initiatives towards conservation of biodiversity.
 - **‘Biodiversity Samrakshan Internship Programme:** It proposes to engage 20 students with postgraduate degrees for a period of one year through an open, online competitive process.
 - **Not all Animals Migrate by Choice Campaign:** The campaign, launched by the Wildlife Crime Control Bureau, with UNEP, seeks to address these environmental challenges, to raise awareness, and to advocate solutions.

World Turtle Day

- In an attempt to raise awareness on conservation of tortoise and turtles, and on illegal trafficking, every year May 23 is celebrated as World Turtle Day.
- The day was founded by American Tortoise Rescue (ATR), a non-profit animal rescue organization.

Threats Faced By Turtles In India

- **Smuggling:** The major threat faced by turtles and tortoises in India is smuggling to East Asian and Southeast Asian markets. Throughout the world, turtles are killed and traded on the global market as exotic food, oil, leather, and jewellery.
- **Habitat Destruction:** The Ganges and other major rivers of India sustain turtle life. As these rivers become more and more polluted, the turtles are beginning to die off at greater rates. The hatchlings are born deformed; adults are dying from eating plastic; and the food sources are disappearing.
- **Fishing:** Large fishing trawlers also sometimes catch sea turtles, cut off their flippers to get them out of the net, and then leave them to die.
- **Coastal Development:** Sea turtle habitats are destroyed because of shrinking coastlines. Wherever there is boat vessel traffic, or high-rise is built up along the shore, and wherever there is sea floor dredging and beach erosion sea turtle food supplies and nesting areas take a major hit.

Why should you care about pollinators?



Nearly 90 per cent of all wild flowering plants depend at least to some extent on animal pollination.



Pollinators affect 35 percent of global agricultural land.



Caring for bees and other pollinators is part of the fight against world hunger.



Ensuring biodiversity among these species is crucial to build resilience in agroecosystems and adapt to climate change.

- **Climate Change:** Climate change can impact the natural sex ratios of hatchlings, increase the likelihood of disease outbreaks, and can escalate the frequency of extreme weather events, which destroy nesting beaches and coral reefs.

Conservation Efforts

- The “**turtle walks**” involve many local people who carefully dig up the nests along the beaches and take the eggs to a protected spot to make sure the eggs are not stolen or eaten. When the eggs hatch, volunteers move the hatchlings to the sea so they are not killed crossing the beach.
- In India, sea turtles are protected under the Indian **Wildlife Protection Act of 1972**.
- There are closed seasons for certain types of fishing vessels. In Tamil Nadu and Puducherry, the closed season for commercial fishing boats is from April 15 to May 29 (east coast) and June 15 to July 29 (west coast). Here, mechanised fishing trawlers are banned from fishing.

Updates On Covid-19

A. Sex Hormones and COVID-19

- Men have appeared likelier than women to die of COVID-19.
- While the reason remains an open question, trials have been done to find out whether the answer lies in two sex hormones in women — **estrogen** and **progesterone**. There are possibility that women’s sex hormones help them fight the infection better than men. A woman’s genetic makeup consists of two X chromosomes (a man has only one of those). Because X chromosomes contain most of the genes related to the immune system, the inference is that women are better equipped to mount an immune response.
- Another study suggests that the reason may be related to the concentration of a key **enzyme ACE2** in the blood of men and women. A study of several thousand patients found men have higher concentrations of ACE2 in their blood than women.
- Other theories are based on lifestyle and perceptions — men are likelier to smoke and take risks, which could include not taking enough precautions against infection.

Estrogen and Progesterone Hormones

- They are the two main sex hormones that characterise a woman.
- Estrogen helps her develop female physical features and also maintains her reproductive system.
- Progesterone is secreted by a temporary endocrine gland that the body produces during the second half of the menstrual cycle, and helps prepare the body for possible pregnancy after ovulation.
- The male body too has estrogen and produces progesterone, both in smaller amounts.

Angiotensin-converting enzyme 2(ACE2)

- It is an enzyme **attached to the outer surface (cell membranes)** of cells in the lungs, arteries, heart, kidney, and intestines. It lowers blood pressure.
- ACE2 also **serves as the entry point into cells for some coronaviruses including Severe Acute Respiratory Syndrome Coronavirus 2**. The human version of the enzyme is often referred to as hACE2. Hence, some studies suggest that higher concentrations of ACE2 in men are responsible for higher death of men than women.

B. Ultraviolet Light and Coronavirus

- Scientists are studying the use of **Ultraviolet Germicidal Radiation (UVGI)** to detect the virus in public places and they believe **Ultraviolet (UV) lights** would be able to disinfect contaminated public spaces to stop the transmission of the virus.
- UVGI uses the “destructive properties” of UV light to target pathogens i.e. UVGI replicates UV wavelengths that disinfects contaminated spaces, air and water.
- UVGI is a promising method for disinfection but the efficacy of it depends on its dose. In 2005, the US Centers for Disease Prevention and Control (CDC) revised its guidelines for using UVGI with regards to the spread of tuberculosis (TB) in hospital settings.
- While using UVGI, it is important to consider factors such as the sensitivity of microorganisms to UVGI, the dose of UVGI required to kill them, humidity and weather conditions.

Ultraviolet (UV) lights

- It is a form of electromagnetic radiation with wavelength from 10 nm (with a corresponding frequency of approximately 30 PHz) to 400 nm (750 THz), shorter than that of visible light but longer than X-rays. UV is not visible to the naked eye.
- The full spectrum of UV radiation is sourced from the sun and can be subdivided into UV-A, UV-B and UV-C rays.
- UV-C rays are the most harmful and are completely absorbed by the Earth’s atmosphere. Further, while both UV-A and UV-B rays are harmful, exposure to UV-B rays can cause DNA and cellular damage in living organisms.
- UV light kills cells and increased exposure to it can cause cells to become carcinogenic, thereby increasing the risk of getting cancer. In fact, it is the increased direct exposure to UV rays from the sun that most commonly causes skin cancers.

UV Blaster

- **Defence Research and Development Organisation (DRDO)** has developed an **Ultra Violet (UV) Disinfection Tower** named **UV blaster** for rapid and chemical free disinfection of high infection prone areas. It is a UV based **area sanitiser** and may be used by **remote operation through laptop/mobile phone using Wi-Fi link**.
- The UV Blaster is **useful for high tech surfaces like electronic equipment, computers** and other gadgets 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.

Defence Research Ultraviolet Sanitizers (DRUVS)

Hyderabad based DRDO premier lab, **Research Centre Imarat (RCI)**, has developed an automated contactless UVC sanitisation cabinet, and called Defence Research Ultraviolet Sanitizers (DRUVS).

C. Link between Vitamin D and COVID-19

- A study shows that Italy and Spain, both of which have experienced high Covid-19 mortality rates, have lower average vitamin D levels than most northern European countries.
- People in southern Europe (like Spain, Italy), particularly the elderly, avoid strong sun, while skin pigmentation also reduces natural vitamin D synthesis. Northern Europe also consumes more cod liver oil and vitamin D supplements.
- Vitamin D is known to **modulate the response of white blood cells**, preventing them from releasing too many inflammatory cytokines which can be harmful since an excess of immune cells can attack healthy tissue as well.

Vitamin D

- Vitamin D is a fat-soluble vitamin that is naturally present in very few foods, added to others, and available as a dietary supplement.
- It is also produced endogenously when ultraviolet rays from sunlight strike the skin and trigger vitamin D synthesis.
- It is responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, and multiple other biological effects.
- In humans, the most important compounds in this group are vitamin **D3** (also known as **cholecalciferol**) and vitamin D2 (**ergocalciferol**).
- **Rickets** in children and **Osteomalacia** in adults are the classical vitamin D deficiency diseases.
 - Rickets is a condition that results in weak or soft bones in children.
 - Osteomalacia is a disease characterized by low bone mass and structural deterioration of bone tissue that increases bone fragility and significantly increases the risk of bone fractures.

D. Silent Hypoxia

- Medical practitioners have reported a condition called '**silent**' or '**happy**' hypoxia, in which patients have extremely low blood oxygen levels, yet do not show signs of breathlessness. They are now advocating for its early detection as a means to avoid a fatal illness called **Covid pneumonia**.
- Covid pneumonia — a serious medical condition found in severe Covid-19 patients — is **preceded by 'silent hypoxia'**, a form of oxygen deprivation that is harder to detect than regular hypoxia.
- 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.
- 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.
- However, **some COVID-19 patients did not feel breathless**. This 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" — being able to expel carbon dioxide and avoiding its buildup. Thus, patients do not feel short of breath.
- A medical device called a **pulse oximeter** – used to detect oxygen level in the blood– **could help in the early detection of silent hypoxia**.

E. Coronavirus Causes Blood Clots

- **Doctors around the world are noting a raft of clotting-related disorders - from benign skin lesions on the feet sometimes called "Covid toe" to life-threatening strokes and blood-vessel blockages.**
- **The problem is visible in clots, called thrombi, that form in patients' arterial catheters and filters used to support failing kidneys. More pernicious are the clots that impede blood flow in the lungs, causing difficulty breathing.**
- **Clumps of platelets inside blood vessels, or microthrombi, are probably why Covid patients suddenly "fall off the ledge" and develop severe blood-oxygen deficiency.**

- Separate studies from France and the Netherlands 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. These often occur when bits of blood clots from veins deep in the legs travel to the lungs. If untreated, large arterial lung clots can put overwhelming strain on the heart, causing cardiac arrest.
- Clots may also form in other parts of the body, potentially damaging vital organs including the heart, kidneys, liver, bowel, and other tissues.
- However, it's not unusual for infections to raise the risk of clotting. The 1918 Spanish flu pandemic, caused by a novel strain of influenza that killed some 50 million people worldwide, 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.

F. ATULYA

- **Defence Institute of Advanced Technology** has developed a **microwave steriliser** named as 'ATULYA' to disintegrate (COVID-19). The virus gets disintegrated by differential heating in the range of 560 to 600 Celsius temperatures.
- The product is a cost effective solution, which can be operated in **portable** or fixed installations.

Defence Institute of Advanced Technology(DIAT)

- It is the Premier Deemed University under the **Department of Defence Research & Development, Ministry of Defence**, Government of India.
- DIAT is specialized in the **training of officers** of Indian Armed forces (Army, Navy & Air Force), Paramilitary forces (CRPF/BSF/ITBP/SSB etc.), Coast Guard, Defence Research Organizations, IOFS (Indian Ordnance Factories) etc.
- It is a Category 'A' Deemed University based in **Pune**, Maharashtra and established in 1952.

G. TIDE - Technologies for Divyangjan & Elderly People

- The **Department of Science and Technology** has taken several initiatives to mitigate the impact of COVID-19 among Divyangjan and Elderly through its programme on **Technology Interventions for Disabled and Elderly (TIDE)**.
- TIDE is a programme of the **Science for Equity, Empowerment & Development Division (SEED), Department of Science and Technology (DST)** to promote applied research and development of assistive technologies for empowerment of elderly population and divyangjan in the country.
- Under this programme an **e-Tool** to create awareness and impart health and hygiene related information along with education and entertainment to *overcome loneliness of the persons with intellectual disabilities*, faced due to COVID-19 pandemic.
- A **wearable sensor device** has also been developed to remotely monitor the activities of Elderly and Divyangjan staying alone or those who happen to be under quarantine or isolation wards.
- Researchers from the **National Institute of Animal Biotechnology (NIAB), Hyderabad** have developed a **portable and biosensor** device named **eCovSens**, that can be used to detect the presence of novel coronavirus antigens in human saliva within 30 seconds using just 20 microlitres of the sample.

H. COBAS 6800

- Installed at **National Centre for Disease Control**, it is a fully automated, high end machine for performing real time PCR testing for COVID-19. It will provide quality, high-volume testing with a high throughput of around 1200 samples in 24 hours.
- It is a **sophisticated machine** enabled with robotics that minimizes the risk of infection to the health care workers since it can be operated remotely with limited human intervention.
- It can **also detect other pathogens** like **Viral Hepatitis B & C, HIV, MTb (both rifampicin and isoniazide resistance), Papilloma, CMV, Chlamydia, Neisseria etc.**

National Centre for Disease Control (NCDC)

- NCDC (Previously known as **National Institute of Communicable Diseases**) is an institute under the Indian Directorate General of Health Services, **Ministry of Health and Family Welfare**. The Institute has its **headquarters** in **Delhi**.
- It was established in July 1963 for research in epidemiology and control of communicable diseases and to reorganize the activities of the **Malaria Institute of India (MII)**.
- The origin of NCDC can be traced back to the **Central Malaria Bureau**, which was established at Kasauli, Himachal Pradesh, India in 1909. It was renamed as the **Malaria Institute of India** in 1938 and in 1963 renamed as the **National Institute of Communicable Diseases (NICD)**. On 30 July 2009, it was named as the **National Centre for Disease Control**.
- It functions as the **nodal agency** in the country for disease **surveillance facilitating prevention and control of communicable diseases**.

I. hmAbs

- **Council of Scientific & Industrial Research** through its **New Millennium Indian Technology Leadership Initiative (NMITLI)** program approves a multi institutional project to develop **human monoclonal antibodies (hmAbs)** that can neutralize SARS-CoV-2 in patients.
- The project aims to generate hmAbs to SARS-CoV-2 from **convalescent phase** of COVID-19 patients and select high affinity and neutralizing antibodies.
- The project also aims to **anticipate future adaptation** of the virus and generate hmAbs clones that can neutralize the mutated virus so that it could be readily used for combating future SARS-CoV infections.

New Millennium Indian Technology Leadership Initiative (NMITLI)

- It is **CSIR** led the **largest public-private-partnership effort within the R&D domain in the country**.
- It seeks to catalyze innovation centered scientific and technological developments as a vehicle to attain for Indian industry a global leadership position, in selected niche areas in a true 'Team India' spirit, by synergising the best competencies of publicly funded R&D institutions, academia and private industry.

J. Intellectual Property Facilitation Cell (IPFC)

- A low-cost personal protective equipment (PPE), designed and produced by the Navy, has received a patent. The patent was successfully filed by the **Intellectual Property Facilitation Cell (IPFC)**.
- IPFC is a joint project of NRDC (**National Research Development Corporation**) and MoMSME (**Ministry of Micro, Small and Medium Enterprises**). It aims to promote awareness and adoption

of Intellectual Property Rights amongst entrepreneurs and MSMEs in India while making access to high-quality IP services and Resources.

National Research Development Corporation (NRDC)

- It was established in 1953 by the Government of India, with the primary objective to promote, develop and commercialise the technologies / know-how / inventions / patents / processes emanating from various national R&D institutions / Universities.
- It is presently working under the administrative control of the Dept. of Scientific & Industrial Research, Ministry of Science & Technology.

K. COVID-19 India National Supermodel

- The **Department of Science and Technology (DST)** has initiated a **COVID -19 Indian National Supermodel** to help **monitor the future transmission** of infection, thus aiding decisions involving health system readiness and other mitigation measures.
- It will aggregate successful **evidence-based mathematical and statistical forecasting** models and include the best **predictive analytics** for robust forecasting of infectious disease spread.
- The supermodel could be **used by the policymakers** in India and around the world to overcome difficulties in predicting the rate of spread of infection and how it would burden the healthcare sector, thereby curbing the epidemic.
- As part of this initiative, **Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)** and **IISc, Bangalore** will **coordinate** to connect and work with all COVID-19 modeling projects and programs in the country.

Jawaharlal Nehru Centre For Advanced Scientific Research (JNCASR)

- It is an **autonomous and multidisciplinary research institute** under the Department of Science & Technology (DST), Govt. of India.
- It was established in 1989 at **Bangalore** to mark the **birth centenary of Pandit Jawaharlal Nehru**, the first Prime Minister of independent India.

L. Gene APOE

- A new study has found a link between the **severity of Covid-19** and a gene linked to **dementia**. Having a faulty gene linked to dementia doubles the risk of developing severe COVID-19. The gene is called **APOE**, and exists in a **different form**, one of which is termed **e4e4**.
- **Apolipoprotein E (APOE)** is a **protein** involved in the **metabolism of fats** in the body. It is implicated in **Alzheimer's disease** and **cardiovascular disease**.
- APOE belongs to a family of **fat-binding proteins** called **apolipoproteins**. It is primarily produced by the **liver** and **macrophages**, and mediates **cholesterol metabolism**.

M. Ashwagandha and Anti-Covid-19 Drug

- The researchers of **IIT-Delhi**, in collaboration with **Japan's National Institute of Advanced Industrial Science and Technology (AIST)**, have found that the natural compounds from **Ashwagandha** and **propolis** have the potential to be effective anti-COVID-19 drug candidates.

- The researchers targeted the **main SARS-CoV-2's enzyme for splitting proteins**, known as the **Main protease or Mpro** that plays a key role in mediating viral replication. This is an attractive drug target for this virus. They discovered that **Withanone (Wi-N)**, a natural compound derived from Ashwagandha (*Withania somnifera*) and **Caffeic Acid Phenethyl Ester (CAPE)**, an active ingredient of New Zealand propolis, have the potential to interact with and block the activity of Mpro.

N. Agappe Chitra Magna (ACM) Kit

- A magnetic nanoparticle-based RNA extraction kit **Agappe Chitra Magna** has been launched commercially for detection of COVID 19.
- The RNA extraction kit was developed by **Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST)**, Trivandrum, an Institute of National Importance of the Department of Science and Technology (DST) along with Agappe Diagnostics Ltd. (Cochin).
- It uses an innovative technology for **isolating RNA using magnetic nanoparticles** to capture the RNA from the patient sample. The magnetic nanoparticle beads bind to the viral RNA and, when exposed to a magnetic field, give a highly purified and concentrated RNA. As the sensitivity of the detection method is dependent on getting an adequate quantity of viral RNA, this innovation enhances the chances of identifying positive cases.
- It is an **inexpensive, fast and accurate testing method** for COVID-19. The kit is expected to **reduce the cost of testing and the country's dependence on imported kits**.

O. Kangra Tea & Coronavirus

- CSIR's **Institute of Himalayan Bioresource Technology** claims that chemicals found in Kangra tea could help in boosting immunity as they can block coronavirus activity better than anti-HIV drugs.
- Kangra tea is a tea from the **Kangra district in Himachal Pradesh**. Both black tea and green tea have been produced in the Kangra Valley **since the mid-19th century**.
- Kangra tea was given the **Geographical Indication status in 2005**.
- The first flush of Kangra tea is **known for quality, unique aroma and tinge of fruity flavor**. A little milder than Darjeeling tea in terms of flavour, Kangra tea has **more body and liquor**.

P. Adenovirus COVID-19 Vaccine

- A phase-1 trial using a **single dose of a vaccine (Ad5-nCoV)** was found to be safe, well-tolerated and able to generate immune responses against the coronavirus.
- The vaccine uses a **recombinant adenovirus type-5 vector** that carries the **genetic material that codes for spike glycoprotein of novel coronavirus**. The adenovirus is a **weakened common cold virus**.
- The most **common adverse reaction** was **pain at the injection site, fever, fatigue, headache and muscle pain**. However, these adverse reactions persisted for less than 48 hours. No serious adverse event was noted within 28 days post-vaccination.
- The vaccine was found to **elicit neutralising antibodies**, which peaked at day 28 post-vaccination, while **rapid specific T-cell responses peaked at day 14** after vaccination.
- The **pre-existing immunity to adenovirus type-5 vector** used in the vaccine, regardless of the vaccine doses, **could reduce the immune responses** (both neutralising antibodies and T-cell response) to the virus and **also lower the peak of the responses**, particularly for neutralising antibodies immunity.

- The researchers will be testing the low- and middle-dose vaccine in phase-2 trials. The phase-2 trial will be a randomised, double-blinded and placebo-controlled trial.

Q. Miscellaneous

- i) **COVID Kavach Elisa (Enzyme-Linked Immunosorbent Assay):** India's first indigenous antibody test for COVID-19, 'COVID Kavach Elisa', has been developed by the Pune-based National Institute of Virology. The serological test will detect the Immunoglobulin G (IgG) antibody, and will be used for surveillance purposes in hotspots. The test will have the advantage of testing 90 samples together in two-and-a-half hours.

While the RT-PCR, which detects the RNA of the coronavirus, enables detection of current infection, it will not be useful if the testing is carried out days after the infection clears as the virus will no longer be present. However, antibodies developed in response to the coronavirus infection will be present in the blood for a longer duration and hence the ELISA test can help detect past infection. Thus, while real-time RTPCR is the frontline test for clinical diagnosis of SARSCoV-2, robust antibody tests are critical for surveillance.

- ii) **GARUD Portal:** The Civil Aviation Ministry and Directorate General of Civil Aviation(DGCA) have launched the **GARUD (Government Authorisation for Relief Using Drones)** portal for providing **fast track conditional exemptions** to government agencies for **COVID-19 related drone operations**.
- iii) **Corona Killer:** Garuda Aerospace has brought out an **Automated Disinfecting Unmanned Aerial Vehicle (UAV) 'Corona-Killer'** to spray disinfectants and sanitize public spaces to contain spread of COVID-19. It consists of **patented autopilot technology, advanced flight controller system & is equipped with fuel efficient motors** that enables the drone to be deployed for 12 hours covering 20 km a day. These drones can be used to spray disinfectants on buildings up to 450 feet, which are not possible through manual spraying.
- iv) **Year of Awareness on Science & Health (YASH):** The National Council for Science & Technology Communication (NCSTC), Department of Science & Technology (DST) has launched a programme on health and risk communication called 'YASH' with focus on COVID-19. It is a comprehensive and effective science and health communication effort for promoting grass-root level appreciation and response on health and would help saving and shaping the lives of people at large, as well as build confidence, inculcate scientific temper and promote health consciousness among them.
- v) **SwasthVayu:** CSIR-National Aerospace Laboratories (NAL), Bengaluru has developed **BiPAP Non Invasive Ventilator "SwasthVayu"**. **BiPAP (Bilevel Positive Airway Pressure)** is an **electronic breathing device** used in the treatment of sleep apnea, lung disease, and to treat respiratory weakness.
- vi) Union **HRD Minister** launched a helpline "**Bharosa**" for **counselling** of students of the Central University of **Odisha**, who are in mental distress in the wake of the coronavirus pandemic.
- vii) The Mysuru-based Central Food Technological Research Institute (CFTRI) has developed **Spirulina groundnut Chikki** that can provide micronutrients and boost immunity of people during this time of pandemic. Spirulina is a biomass of cyanobacteria (blue-green algae) that can be consumed by humans and animals. The three species are Arthrospira platensis, A. fusiformis, and A. maxima. Cultivated worldwide, Arthrospira is used as a dietary supplement or whole food. It is also used as a feed supplement in the aquaculture, aquarium, and poultry industries.

Vaccine Development

A **vaccine** is a **biological preparation** that **provides active acquired immunity** to a particular infectious disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins, or one of its surface proteins.

Edward Jenner is considered the **founder of vaccinology** in the West in 1796, after he inoculated a 13 year-old-boy with **vaccinia virus (cowpox)**, and demonstrated immunity to smallpox. In 1798, the **first smallpox vaccine** was developed.

Vaccine Types

There are different types of vaccines. Each type is designed to teach the immune system how to fight off certain kinds of germs — and the serious diseases they cause. There are **4 main types of vaccines**:

1. Live-attenuated vaccines

- Live vaccines **use a weakened (or attenuated) form of the germ** that causes a disease.
- Because these vaccines are so similar to the natural infection that they help prevent, they create a strong and long-lasting immune response.
- **Limitations:**
 - Because they contain a small amount of the weakened live virus, some people should talk to their health care provider before receiving them, such as people with weakened immune systems, long-term health problems, or people who've had an organ transplant.
 - They need to be kept cool, so they don't travel well. That means they can't be used in countries with limited access to refrigerators.
- **Live vaccines are used to protect against:** Measles, Mumps, Rubella (MMR Combined Vaccine), Rotavirus, Smallpox, Chickenpox, Yellow Fever etc.

2. Inactivated vaccines

- Inactivated vaccines use the killed version of the germ that causes a disease.
- Inactivated vaccines usually don't provide immunity (protection) that's as strong as live vaccines.
- **Inactivated vaccines are used to protect against:** Hepatitis A, Flu (shot only), Polio (shot only), Rabies etc.

3. Subunit, recombinant, polysaccharide, and conjugate vaccines

- Subunit, recombinant, polysaccharide, and conjugate vaccines use specific pieces of the germ — like its protein, sugar, or capsid (a casing around the germ).
- Because these vaccines use only specific pieces of the germ, they give a very strong immune response that's targeted to key parts of the germ.
- They can also be used on almost everyone who needs them, including people with weakened immune systems and long-term health problems.
- **Limitation:** One may need booster shots to get ongoing protection against diseases.
- **These vaccines are used to protect against:** Hib (Haemophilus influenzae type b) disease, Hepatitis B, HPV (Human papillomavirus), Whooping cough (part of the DTaP combined vaccine), Pneumococcal disease, Meningococcal disease, Shingles etc.

4. Toxoid vaccines

- Toxoid vaccines use a toxin (harmful product) made by the germ that causes a disease.

- They create immunity to the parts of the germ that cause a disease instead of the germ itself. That means the immune response is targeted to the toxin instead of the whole germ.
- **Limitation:** One may need booster shots to get ongoing protection against diseases.
- Toxoid vaccines are used to protect against: Diphtheria, Tetanus etc

Future Of Vaccines

Scientists are still working to create 2 new types of vaccines:

- **DNA vaccines** are easy and inexpensive to make — and they produce strong, long-term immunity.
- **Recombinant vector vaccines** (platform-based vaccines) act like a natural infection, so they're especially good at teaching the immune system how to fight germs.

R&D Statistics and Indicators 2019-20

- Based on the national S&T survey 2018, R&D Statistics and Indicators 2019-20 was brought out by the **National Science and Technology Management Information (NSTMIS), Department of Science and Technology (DST).**
- It is an extraordinarily important document for evidence-based policymaking and planning in higher education, R&D activities and support, intellectual property, and industrial competitiveness.

Key Findings

- India's **gross expenditure in R&D** has tripled between 2008 & 2018. India has spent 0.7% of its GDP on R&D in 2017-18, while the same for BRICS countries was Brazil (1.3%), Russian Federation (1.1%), China (2.1%) and South Africa (0.8%).
- **Extramural R&D support** by central S&T agencies has increased significantly
 - DST and DBT were the two major players contributing 63% and 14%, respectively, of the total extramural R&D support in the country during 2016-17.
 - Women participation in extramural R&D projects has increased significantly to 24% in 2016-17 from 13% in 2000-01.
- The **number of researchers per million populations** has doubled since 2000
 - Number of researchers per million population in India has increased to 255 in 2017 from 218 in 2015 and 110 in 2000.
 - India's R&D expenditure per researcher was 185 ('000 PPP\$) during 2017-18 and was ahead of Russian Federation, Israel, Hungary, Spain and UK.
 - India occupies 3rd rank in terms of number of PhDs awarded in Science and Engineering (S&E) after the USA (39,710 in 2016) and China (34,440 in 2015).
- India is placed 3rd among countries in **scientific publication** as per NSF database. During 2011-2016, India's growth rate of scientific publication as per the SCOPUS and SCI database was 8.4% and 6.4% as against the world average of 1.9% and 3.7%, respectively.
- India is ranked at 9th position in terms of **Resident Patent Filing** activity in the world
 - During 2017-18, a total of 47,854 patents were filed in India. Out of which, 15,550 (32%) patents were filed by Indian residents
 - Patent applications filed in India are dominated by disciplines like Mechanical, Chemical, Computer/Electronics, and Communication.

- According to WIPO, India's Patent Office stands at the 7th position among the top 10 Patent Filing Offices in the world.

About National Science and Technology Management Information (NSTMIS)

- NSTMIS is a division of Department of Science and Technology (DST).
- It has been entrusted with the task of building the information base on a continuous basis on resources devoted to scientific and technological activities for policy planning in the country.
- It has been conducting periodically national surveys to collect data on resources devoted to S&T activities (mainly R&D) in the country.

Based on survey data, a number of S&T reports are published, providing vital information on national R&D indicators which serves as an evidence-base for S&T assessment and policy formulation.

FlytNow

- FlytBase, an enterprise drone automation company, has built **FlytNow** that has enabled police authorities from many states including **Maharashtra, Gujarat, Karnataka and Andhra Pradesh** to keep eagle-eye vigilance over the situation.
- FlytNow is an **Internet of Drones (IoD) platform** that allows **seamless integration of intelligent fleets of drones with cloud-based business applications**. The IoD platform assists the Police officials to live stream multi-video feeds from multiple drones to their control room, thus providing situational awareness and enabling them to respond quickly to emergencies.
- The system also allows drone operators to help the police while remaining in the safety of their homes, eliminating the need to be present on the field. Whenever a request was triggered, operators could fly a drone from their home terrace and stream the video feed directly to the central dashboard.
- FlytBase is a **Pune-based start-up**, founded in 2016 and is **funded by the Department of Science and Technology**.

Earth's Magnetic Field

- According to the **European Space Agency's Swarm satellites**, the **magnetic field of the Earth between Africa and South America is weakening**.
- It also reported that from the past 200 years, the entire global magnetic field has lost around 9% of its strength.
- Scientists say the area known as **South Atlantic Anomaly** has significantly widened over the past few years and extends all the way from South America to southwest Africa.
- The area of the anomaly has also grown and moved westward at around 20 km per year. What is worrying scientists is that a second area of minimum intensity has emerged southwest of Africa, which is an indication that the **South Atlantic Anomaly could split up into two separate cells**.
- The ESA believes that one of the reasons for this weakening magnetic field in the region could indicate an **imminent reversal**, where the North Pole and the South Pole switch.
- This reversal last happened 7.8 lakh years ago, with scientists believing that a shift is long overdue. These reversals usually happen at an interval of 250,000 years.

Earth's Magnetic Field

- The earth's magnetic field, or the **geomagnetic field**, is the magnetic field that **extends from the Earth's interior out into space** exerting a force on the charged particles emanating from the Space including Sun.

- It is generated by movements within the **planet's molten iron core**. The outer core of the planet is like a **giant dynamo** and the **rotation of the Earth** creates movements inside the liquid outer core which **gives rise to the geomagnetic field**.
- The earth's south magnetic pole is actually near the **North Pole** and the magnetic north pole is near the **South Pole**. This is why a compass magnet's north pole actually points north (Since opposite poles attract each other).

What Does This Mean

- Earth's Magnetic Field **provides a shield** for earth in space and protects the living beings from the **harmful radiation of the sun**. A stronger magnetic field blocks out more radiation from reaching the earth's surface.
- The reversal could mean a change in how the magnetic field protects the earth from harmful cosmic radiation as well as space winds.
- **Satellites** could be rendered in-operational, which could have significant **disruptions** for **communication systems** around the world, including **telecom networks** and **mobile phones**. Scientists say **spacecraft** flying through the area are more likely to experience technical malfunctions.
- The weakening of earth's magnetic field could also **impact migratory movement**. Birds, animals- all those who migrate with the change in season depend on the earth's mapping to move about can find it a little difficult. This is only a possibility, but we don't know the extent of the damage till now. However, this is a long time process and not going to affect or alarm the general public to a huge extent on immediate basis.

South Atlantic Anomaly (SAA)

- It is the behaviour of Earth's Geo-Magnetic field in an area between Africa and South America.
- For the unversed, it is regarded as an area where the **Earth's inner Van Allen radiation belt (it is a zone of energetic charged particles)** comes closest to the Earth's surface. The SAA area dips down to an altitude of 200 kilometres (120 mi). This further leads to an escalated flux of energetic particles in the region and exposes orbiting satellites to higher-than-usual levels of radiation.
- The mystery of the **origin of the South Atlantic Anomaly** has yet to be solved.

Swarm Constellation Mission

- Swarm is **European Space Agency's first constellation** of satellites for **Earth observation**.
- It consists of three satellites **designed to identify and precisely measure** the different **magnetic signals** that make up **Earth's magnetic field**.
- The mission is operated by ESA's **European Space Operations Centre (ESOC)**, in **Germany**, via the primary ground station in **Kiruna, Sweden**.

[1-D Simulation Code to Study Earth's Magnetosphere](#)

- 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**.
- IIG is an **autonomous institution** of the Department of Science and Technology.

Mechanism

- The magnetosphere is the region of space surrounding Earth where the dominant magnetic field is the **magnetic field of Earth**, rather than the magnetic field of interplanetary space.

- Almost 99% of matter in the universe is in the form of plasma. Plasma is **superheated matter** – so hot that the electrons are ripped away from the atoms forming an ionized gas. It comprises over 99% of the visible universe. Sun is the major source of plasma deposition in space around the Earth.
- Earth's magnetosphere, too, contains plasma and 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.
- The morphology of the plasma processes around the satellite can be understood quite well. However, when they leave the observational domain of one satellite to enter into another, a vast blind arena is created. How the morphology of these processes changes over space and time can be ideally deciphered only through computer simulations.
- To tackle this problem, the team developed a generalized 1D fluid code which modelled the coherent electric field structures in space plasmas.

Relevance Of The Study

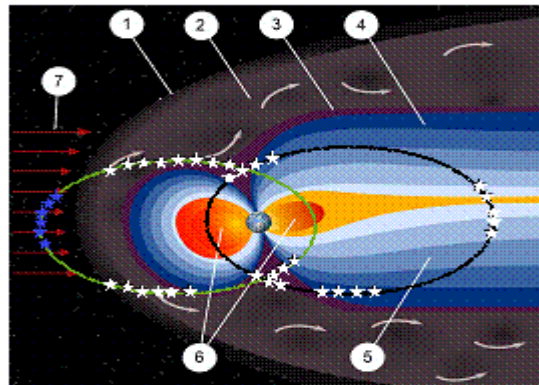
- **It can also lead to precisely controlled fusion laboratory experiments for ever-expanding energy needs of humanity**
- The study of complex and nonlinear wave phenomena in the magnetosphere will help **advance the knowledge of plasma waves, instabilities, and coherent effects associated with wave-particle interactions** that are useful in planning of future space missions.
- Apart from the well-being of these expensive satellites, the academic understanding of this region is quite essential **to comprehend the cosmos in its entirety.**

Earth's Magnetosphere

- The magnetosphere is the region of space surrounding Earth where the dominant magnetic field is the **magnetic field of Earth**, rather than the magnetic field of interplanetary space. The magnetosphere is **formed by the interaction of the solar wind with Earth's magnetic field.**

• Parts of Earth's Magnetosphere:

- Bow shock:** It occurs when the magnetosphere of an astrophysical object interacts with the nearby flowing ambient plasma such as the solar wind.
- Magnetosheath:** It is the region of space between the magnetopause and the bow shock of a planet's magnetosphere.
- Magnetopause:** It is the boundary between the planet's magnetic field and the solar wind.
- Northern tail lobe and Southern tail lobe:** Magnetic field lines in the northern tail lobe point towards the object while those in the southern tail lobe point away.
- Plasmasphere:** Also known as inner magnetosphere, it is a region of the Earth's magnetosphere consisting of low energy (cool) plasma. It is located above the ionosphere.
- Solar wind:** It is the stream of charged particles released from the upper atmosphere of the Sun (corona).



50th Foundation Day of DST

- The Department of Science and Technology (DST) recently celebrated its 50th Foundation Day.
- DST was **established in May 1971**, with the objective of **promoting new areas of Science & Technology** and to play the role of a nodal department for organising, coordinating and promoting S&T activities in the country.
- It not only provides funding but also **makes policies and co-ordinates scientific work with other countries**. It is a great platform for empowering scientists and scientific institutions and works with a highly distributed system permeating stakeholders.

Few Initiatives Of DST

- **Scientific and Useful Profound Research and Advancement (SUPRA)**: It seeks to explore new scientific breakthroughs, with long-term impact on fundamental scientific understanding, and offer disruptive technologies at the cutting edge.
- **Intensification of Research in High Priority Areas (IRHPA)**: It is designed to provide major support to a few selected areas of research that have high priority from the viewpoint of advances in fundamental science and that can be of great significance for scientific and technological development.
- **National Initiative For Developing And Harnessing Innovations (NIDHI)**: It is an umbrella programme for nurturing ideas and innovations which is knowledge-based and technology-driven, into successful startups.
- **Million Minds Augmenting National Aspirations and Knowledge (MANAK)**: It aims to target one million original ideas/innovations rooted in science and societal applications to foster a culture of creativity and innovative thinking among school children.
- **Sophisticated Analytical & Technical Help Institute (SATHI)**: Its aim is to provide professionally managed services with efficiency, accessibility and transparency of highest order under one roof to service the demands of industry, start-ups and academia.
- **Cyber-Physical systems**: It is an interdisciplinary programme converging area like communication, computing, National Mission on Quantum Science, Supercomputing Mission as well as by working on challenging areas like Sustainable Development, Rise of Intelligent Machines and Climate change research.

Development of Nanomaterials Based Supercapacitors

- **Recently, DST INSPIRE Faculty has made significant achievements in developing nanomaterials-based supercapacitors to achieve high energy density and power density of supercapacitors.**
- **They have also developed a novel green approach for synthesis of Iron-based nanocatalyst, which can be used for large scale production of Carbon Nanotubes.**
- **The team is also working on Surface-Enhanced Raman spectroscopy (SERS) which can help detect harmful molecules present in water at ultra-low concentrations.**
- Increasing energy demand due to the growth of human population and technological advancement poses a great challenge for human society. 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. Supercapacitors can be an alternative for such purposes.

- The focus on energy and optoelectronics devices paves the way for the development of cost-effective and efficient devices, which can be used for **energy storage application**. It makes way for materials which can be used as advanced photodetectors and also be **used as optical sensors for water pollution control**.

Luhman 16

- A group of international astrophysicists have identified cloud bands on the surface of **Luhman 16A** by using the Very Large Telescope at **European Southern Observatory, Chile**.
- Researchers have found the actual structure of the clouds — that they form bands over one of a pair of binary brown dwarfs in the Vela constellation. The **same was not true of Luhman 16B**.
- Understanding the cloud system over a brown dwarf **can shed light on the pressure, temperature and climate on the surface of the celestial body**.
- The researchers have used an idea put forth nearly two decades ago by Indian astrophysicist **Sujan Sengupta** who propounded that the **light emitted by a cloudy brown dwarf, or reflected off an extrasolar planet, will be polarised**.
- He then suggested that a **polarimetric technique** could serve as a potential tool to probe the environment of these objects. **Polarimetry** is the measurement and interpretation of the polarization of transverse waves, most notably **electromagnetic waves, such as radio or light waves**.

Luhman 16

- Luhman 16 is a **binary brown dwarf system**, the **third closest system to the Sun** after Alpha Centauri and Barnard's star.
- At a distance of about 6.5 light years from the Sun, this **pair of brown dwarfs** referred to as **Luhman 16A** and **Luhman 16B** orbit each other, casting a dim light.
- **Brown dwarfs** are also called **failed stars**, because **their masses are intermediate to the largest planets and the smallest main sequence stars**. Their masses being too small, they are unable to sustain fusion of their hydrogen to produce energy.
- Unlike a star whose brightness would be too high, or an extrasolar planet orbiting a star, where the extra light from its star would have to be cut off to make the measurement, the **light of the brown dwarfs was just right**. The faintness of the glow proved to be providential in finding the cloud bands.

Binary Star System

- A **binary star** is a star system **consisting of two stars orbiting around their common barycenter**.
- Binary star systems 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.

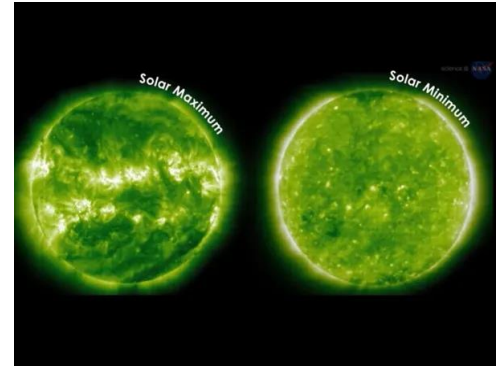
African Swine Fever (ASF)

- Recently the state government of Assam announced that the deadly African Swine Fever (ASF) has killed more than 14,000 pigs in Assam.
- African swine fever (ASF) is a **severe, highly-contagious hemorrhagic viral disease** of domestic and wild pigs. This transboundary animal disease (TAD) **can be spread by live or dead pigs, domestic or wild, and pork products**.

- It is **caused by a large DNA virus of the Asfarviridae family**, which also infects ticks of the genus *Ornithodoros*.
- Signs of African swine fever and classical swine fever (CSF) may be similar but the **ASF virus is unrelated to the CSF virus**.
- As of now, there is no approved vaccine, which is also a reason why animals are culled to prevent the spread of infection.
- African swine fever is a disease listed in the **World Organisation for Animal Health (OIE) Terrestrial Animal Health Code** and must be reported to the OIE.

Solar Minimum and Solar Maximum

- While we on Earth suffer from coronavirus, our star—the **Sun**—is **having a lockdown** all of its own. There are reports that already there have been 100 days in 2020 when our Sun has displayed zero sunspots.
- That makes **2020** the second consecutive year of a **record-setting low number of sunspots**. The sun is said to have gone into a state called the ‘**solar minimum**’ and is about to enter the deepest period of ‘sunshine recession’ as sunspots are virtually not visible at all.



What is A Sunspot

- It's an area of **intense magnetic activity on the surface of the Sun**—a **storm**— that appears as an area of darkness. Sunspots are indicative of solar activity, birthing solar flares and **coronal mass ejections (CMEs)**. Although sunspots seem like tiny specks, they can be colossal in size.
- Sunspots have been **continuously counted each day since 1838**, which has allowed solar scientists to describe a repeating pattern in **the wax and wane of activity** on the Sun's surface—the solar cycle.
- In 1843, the solar cycle was discovered by **Samuel Heinrich Schwabe**. He, after 17 years of observations, noticed a periodic variation in the average of sunspots.

What Is The Solar Cycle

- The Sun has a cycle that lasts between **nine and 14 years**—typically **11 years, on average**—and **right now we're in the trough**, i.e. **Solar minima** and **maxima** are the **two extremes** of the Sun's **11-year and 400-year activity cycle**.
- Every 11 years or so, sunspots fade away, bringing a period of relative calm. This is called the solar minimum. And it's a regular part of the sunspot cycle. At a **solar minimum**, there are fewer sunspots and solar flares subside. Sometimes, days or weeks go by without a spot. Solar minimum is the period of least solar activity in the 11-year solar cycle of the Sun. This may cause health risks to astronauts travelling through space as the sun's magnetic field weakens and provides less shielding from these cosmic rays.
- At a **maximum**, the Sun is **peppered with sunspots**, solar flares erupt, and the Sun hurls billion-ton clouds of electrified gas into space. Sky watchers may see more auroras, and space agencies must monitor radiation storms for astronaut protection. Power outages, satellite malfunctions, communication disruptions, and GPS receiver malfunctions are just a few of the things that can happen during a solar maximum.

North Magnetic Pole Has Shifted From Canada Towards Siberia

- Scientists have discovered that the **North Magnetic Pole** has, in recent years, **shifted away from Canada towards Siberia**. A team from the UK says this is explained by the **competition of two magnetic “blobs”** on the edge of the Earth’s outer core.
- The researchers found that the **changes in the flow of molten material** in the planet’s interior have altered the strength of the above regions of negative magnetic flux. The changes in the pattern of flow have **weakened the patch under Canada** and slightly **strengthened the one under Siberia**. As a result, the North Pole has shifted from the Canadian Arctic and crossed over the International Date Line towards Russia.

Tianwen-1

- **China** will launch its first **Mars mission, the ‘Tianwen-1’ (Named after the ancient Chinese poem ‘Questions to Heaven’)**, which is expected to land on the **Red Planet’s surface in the first quarter of 2021**.
- It will be an **all-in-one orbiter, lander and rover** will search the **Martian surface** for water, ice, investigate soil characteristics, and study the **atmosphere**, among other objectives.
- It will be the **first to place a ground-penetrating radar** on the Martian surface, which will be able to study local geology, as well as rock, ice, and dirt distribution. Two candidate **landing sites** have been identified, one of them being **Utopia Planitia**.
- Utopia Planitia is a large plain within Utopia, the **largest recognized impact basin on Mars and in the Solar System** with an estimated diameter of 3300 km.
- China’s **previous ‘Yinghuo-1’ Mars mission**, had **failed** after it could not leave the Earth’s orbit and disintegrated over the Pacific Ocean in **2012**.

Why Mars exploration

- After the Moon, the most number of space missions in the Solar System have been to Mars. Despite being starkly different in many ways, the Red Planet has several **Earth-like features**– such as clouds, polar ice caps, canyons, volcanoes, and seasonal weather patterns.
- For ages, scientists have wondered whether **Mars can support life**. In the past few years, Mars missions have been able to discover the possible presence of liquid water on the planet, either in the subsurface today or at some point in its past.
- This has made space explorers more curious about whether the planet can sustain life. Newer NASA missions have since transitioned from their earlier strategy of **“Follow the Water”** to **“Seek Signs of Life”**.

Previous Mars Missions

- The **USSR** in **1971** became the **first country** to carry out a Mars landing– its **‘Mars 3’ lander** being able to transmit data for 20 seconds from the Martian surface before failing. The country made its **second** and Mars landing two years later in **1973**.
- The **second country** to reach Mars’s surface, **the US**, holds the record for the most number of Mars landings. Since 1976, it has achieved 8 successful Mars landings, the **latest being the ‘InSight’ in 2019** (launched in 2018).
- **India** and the **European Space Agency** have been able to place their spacecraft in **Mars’s orbit**. **India’s Mars Orbiter Mission (MOM)** or **‘Mangalyaan’** was able to do so in September 2014 almost a year after its launch from the Satish Dhawan Space Centre in Andhra Pradesh.
- The success of the mission will make China the third country to achieve a Mars landing after the USSR and the United States.

- NASA's **Hubble telescope** released an image under the title "**One Large Stellar Latte To Go**" of a **spiral galaxy, NGC 3895**, which, in colour and shape, resembles a **coffee** made by a barista.
- The galaxy, located at a distance of over 161 million light-years, is a **part of Ursa Major**. It was discovered by **German-born British astronomer William Herschel** on March 18, 1790. The galaxy has a diameter of approximately 45,000 light-years.

Hubble Space Telescope

- It is a **space telescope** that was **launched into low Earth orbit in 1990** and remains in operation.
- Hubble captures extremely **high-resolution images** with substantially lower background light than ground-based telescopes in the **ultraviolet, visible, and near infrared regions** of the electromagnetic spectrum.

The Great Observatories Program

- It is one of **NASA's Great Observatories**.
- The Great Observatories program demonstrated the power of using different wavelengths of light to create a fuller picture of the universe.
- It includes
 - **Hubble Space Telescope**
 - **Chandra X-ray Observatory:** Previously known as the *Advanced X-ray Astrophysics Facility (AXAF)*, it is a Flagship-class space telescope launched by NASA on July 23, 1999. It is a X-ray astronomy and an Earth satellite in a 64-hour orbit, and its mission is **ongoing** as in 2020.
 - **Compton Gamma Ray Observatory:** It was a *space observatory detecting photons* with energies from 20 keV to 30 GeV, in Earth orbit from 1991 to 2000. The observatory featured four main telescopes in one spacecraft, covering X-rays and gamma rays, including various specialized sub-instruments and detectors.
 - **Spitzer Space Telescope:** Formerly known as the *Space Infrared Telescope Facility (SIRTF)*, was an infrared space telescope launched in 2003 and **retired** on 30 January 2020.

Ursa Major is a constellation in the **northern sky**, whose associated mythology likely dates back into prehistory. Its **Latin** name means "**greater (or larger) she-bear.**"

Antarctic Impulsive Transient Antenna (ANITA)

- ANITA is a stratospheric balloon payload flying over the Antarctic and maintained by researchers at **NASA**. This balloon was designed **to detect cosmic-ray air showers** through **radio-wave signals**. These signals were detected to have been bouncing off the ice and were to be tracked as they were on their way down or back up after the bounce off the ice shelf.
- This is to be accomplished using an array of *radio antennas suspended from a helium balloon* flying at a height of about 37,000 meters. The height is important here to shut out all other "noises" so that the ANITA antennas can "listen" to the cosmos and detect high-energy particles, known as neutrinos, which constantly bombard the planet.
- The ANITA instrument detects these ultra-high energy neutrinos by use of the **Askaryan effect**. This effect predicts the production of a **coherent radio emission** from the cascade of particles produced in a high-energy particle interaction.

- **ANITA-I** was launched in 2006–07 and **ANITA-IV** was launched in 2016.

Recent Finding

- Scientists may have found what is believed to be evidence of the concept of a "**twin universe**" also born during the Big Bang. Scientists **found high energy particles** which seemed to come "up" out of Earth.
- The high-energy **particles** detected by the device **can only come "down" from space**. But, the particles detected by ANITA **seem to be travelling up**. This indicates that the particles are travelling back in time suggesting the existence of a parallel universe that travels back in time.
- However, some scientists believe that the multiple "impossible events" captured by ANITA could simply be a glitch and there is no conclusive proof of such a universe existing yet.

Number-18 - Flying Bullets

- The **Indian Air Force** is set to operationalize its squadron called the **Number-18 - Flying Bullets** with a fleet of the **Light Combat Aircraft, LCA Tejas**. It will be the second Indian Air Force squadron to operate with the modern multi-role light fighter aircraft.
- The **LCA Tejas** is a **tailless, fourth generation**, compound delta-wing aircraft developed by Hindustan Aeronautics Limited. It is equipped with a fly-by-wire flight control system, integrated digital avionics and multi-mode radar. Its structure is made of composite material. The supersonic combat aircraft is considered the lightest and the smallest of its kind.

PAKDA

- **Russia** has begun building a prototype of its **first stealth bomber aircraft**, known as the PAK DA, will compete with the **U.S. B-2 strategic stealth bomber** which entered service in 1997.
- It is being developed under Russia's **Perspective Aviation Complex for Long Range Aviation (PAKDA) programme**.
- **China** is also developing its own stealth bomber - the Xian **H-20**.
- Russia has already developed its own stealth fighter, the Sukhoi-57. It first flew in 2010 but has yet to be manufactured in large numbers.
- Technical parameters of the PAK DA include **subsonic speed**, 12,000 km operational range and a capability to continuously remain in the air for up to 30 hours while carrying both conventional and nuclear payloads up to 30 tons.

Aircraft Speed

- For aircraft speeds which are very much less than the speed of sound, the aircraft is said to be subsonic.
- Typical speeds for subsonic aircraft are less than 250 mph, and the **Mach number (M)** is much less than one, $M \ll 1$. (**Mach number = Object Speed / Speed of Sound**)

Classification of Aircraft based on speed

- **Subsonic : Mach < 1**
- **Transonic : Mach = 1**
- **Supersonic : Mach > 1**
- **Hypersonic : Mach > 5**

ICGS SACHET

- Defence minister commissioned **Indian Coast Guard Ship (ICGS) 'Sachet'** in Goa. It is the first in the series of five **offshore patrol vessels (OPVs)** has been designed & built indigenously by **Goa Shipyard Limited (GSL)**.
- The ships, on joining the Coast Guard fleet, will be deployed extensively for **Exclusive Economic Zone (EEZ) surveillance**, coastal security and other duties as enshrined in the Coast Guard charter of duties, to safeguard the maritime interests of the Nation.
- Defence minister also commissioned **two interceptor boats (IBs) C-450 and C-451** in Goa. The IBs C-450 and C-451 are **indigenously designed & built** by Larsen & Toubro Shipyard Hazira.

INLCU L57

- A **Landing Craft Utility (LCU) Mark IV** warship, INLCU L57, built by the **Garden Reach Shipbuilders and Engineers Limited (GRSE)** was commissioned into the **Indian Navy** at Port Blair (Andaman and Nicobar). It is the seventh LCU Mark IV to be inducted into the Indian Navy.
- It is an **amphibious ship** with its primary role being transportation and deployment of main battle tanks, armoured vehicles, troops and equipment from ship to shore.
- The **first ship** of the **Mark IV LCU Vessels INLCU L51** was commissioned into Indian Navy in March 2017.

Garden Reach Shipbuilders & Engineers

- A **Government of India Undertaking** under the **Ministry of Defence**, it is one of India's leading shipyards, located in Kolkata, West Bengal. It builds and repairs commercial and naval vessels.
- **Founded in 1884** as a small privately owned company and **nationalised** by the Government of India in **1960**. It was awarded the **Miniratna status** in September 2006.
- GRSE has **ship building facilities** in **Kolkata and Ranchi**.

Defence Testing Infrastructure Scheme

- The launch of **Defence Testing Infrastructure Scheme (DTIS)** has been approved by the Union Defence Minister **with an outlay of Rs 400 crore** for creating **state of the art testing infrastructure** for defence sector.
- It aims to **give a boost to domestic defence and aerospace manufacturing**. This will **facilitate indigenous defence production**, consequently reduce imports of military equipment and help make the country self-reliant.
- The Scheme would run for the **duration of five years** and envisages to **set up six to eight new test facilities** in partnership with private industry. While the majority of test facilities are expected to come up in the **two Defence Industrial Corridors (DICs)**, the Scheme is not limited to setting up Test Facilities in the DICs only.
- The projects under the Scheme will be provided with up to **75% government funding in the form of 'Grant-in-Aid'**. The **remaining 25%** of the project cost will have to be **borne by the Special Purpose Vehicle (SPV)** whose constituents will be Indian private entities and State Governments.
- The **SPVs under the Scheme will be registered under Companies Act 2013** and shall also operate and maintain all assets under the Scheme, in a self-sustainable manner by collecting user charges. The equipment/systems tested will be certified as per appropriate accreditation.

Defence Industrial Corridors in India (DICs)

- It was **announced in the Budget 2018-19** to set up two Defence Industrial Corridors in the

country- one of these Corridors in **Uttar Pradesh** and another in **Tamil Nadu**.

- Subsequently, six nodes have been identified for Uttar Pradesh Corridor and five for Tamil Nadu Corridor.
- **Uttar Pradesh Defence Corridor (6 nodes):** Agra, Aligarh, Chitrakoot, Jhansi, Kanpur and Lucknow.
- **Tamil Nadu Defence Corridor (5 nodes):** Chennai, Coimbatore, Hosur, Salem, and Tiruchirappalli.

AI Virtual Assistant PAI

- **National Payment Corporation of India (NPCI)** launched an artificial intelligence (AI) based chatbot, PAI, to **create awareness** around its products like FASTag, RuPay, UPI, AePS on a real time basis.
- This is yet another NPCI's initiative to improve digital financial inclusion in India.
- The AI virtual assistant, PAI is available round the clock helping users with access to accurate information on NPCI products.

Artificial Intelligence (AI) Portal

- The Ministry of Electronics and Information Technology (MeitY) launched a national Artificial Intelligence Portal, called www.ai.gov.in with IT industry body NASSCOM.
- The platform will act as a **one stop digital platform for AI** related developments in India, sharing of resources details of startups, investment funds in AI, companies and educational institutions related to AI in India.
- The Govt also launched a *national programme for youth*, called "**Responsible AI for Youth**" which aimed at empowering young students of the country with appropriate new age tech mind-set, relevant AI skill-sets and access to required AI tool-sets to make them digitally ready for future.
- The National Programme is open to students of classes 8 - 12 from Central and State government-run schools from across the country.

Central Institute of Petrochemicals Engineering & Technology (CIPET)

- **Central Institute of Plastics Engineering & Technology (CIPET)** has been renamed as **Central Institute of Petrochemicals Engineering & Technology (CIPET)**, a premier national institution under the **Ministry of Chemicals and Fertilizers, Govt. of India**.
- The changed name has been registered under the Tamil Nadu Societies Registration Act 1975. Now CIPET will be in a position to fully devote itself for the growth of the **entire petrochemical sector** with a focus on Academics, Skilling, Technology Support and Research.
- It was established in **1968** by Government of India with the assistance of **United Nations Development Programme (UNDP)** at **Chennai**.

Silk Fibroin-based Hydrogel for Sustained Insulin

- Scientists at **Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)** have developed an **injectable Silk fibroin-based hydrogel for sustained insulin delivery** in diabetic patients.

- They have developed the **silk fibroin (SF) formulation** using biocompatible additives and prepared an **injectable SF hydrogel (iSFH)** that can ease insulin delivery in diabetic patients.
- The subcutaneous injection of insulin with-iSFH **restored the physiological glucose homeostasis for a prolonged period** of 4 days **with no risks of low blood sugar** into the blood.
- The conventional treatment of diabetes involves repeated subcutaneous insulin injections to maintain the physiological glucose homeostasis which are associated with pain, local tissue necrosis, infection, nerve damage, etc. This problem can be overcome with controlled and sustained insulin delivery.
- The iSFH has proved to be an effective insulin delivery tool for diabetic patients with excellent mechanical strength, biocompatibility, encapsulation, storage, and demonstration of its sustained delivery of active insulin.
- The active encapsulation and delivery of insulin by iSFH may also have implications for the future development of formulations for oral insulin delivery.

Diabetes

- Diabetes results from **inadequate production of insulin** due to loss of beta cells or insulin resistance within the body, which imbalances the glucose homeostasis leading to an abrupt increase of blood glucose level.
- **Insulin is synthesized in the pancreas within the beta cells of the islets of Langerhans.**
- It affects more than 70 million people in India, the second-highest in the world.

Lightweight Carbon Foam

- The **Department of Science & Technology INSPIRE Faculty** from Bhopal has developed **lightweight carbon foam**, with a density of less than 0.3g/cc, high porosity of over 85%, good mechanical strength that **can replace lead batteries**.
- **Need For Lightweight Carbon Foam**
 - The present grid-scale energy-storage sector is dominated by **lithium-ion batteries**, because of their higher energy density & specific power and long cycle life. However, there are some serious concerns regarding Li-ion batteries, such as safety risk, limited resource supply, high cost, and lack of recycling infrastructure. This necessitates the development of an alternative battery system.
 - As a result, **lead-acid batteries** are still one of the most reliable, economical, and environmentally friendly options. However, **electrodes in the lead-acid batteries suffer from the problem of heavyweight, corrosion, poor thermal stability**, and diffusion of electrolytes in one dimension, which ultimately affects the output power.
- These carbon foams are **non-toxic, easy to fabricate, affordable, and insoluble in water**. The foam is highly resistive to corrosion, has **good electrical and thermal conductivity** with high surface area. The raw material for the fabrication of carbon foam is easily available everywhere, and there is no costly equipment required for the fabrication of carbon foam and filtration. Such materials can be safely used in **remote areas where power supply is scarce**.
- It can also be useful for heat sinks in power electronics, electromagnetic interference shielding in aerospace, hydrogen storage and electrodes for lead-acid batteries and water purification systems.
- The carbon foam will also be **cost-effective for the removal of arsenic, oil, and other metals from contaminated water**.

INSPIRE Programme

- "Innovation in Science Pursuit for Inspired Research (INSPIRE)" is an innovative programme sponsored and managed by the **Department of Science & Technology** for attraction of talent to Science.
- The basic objective of INSPIRE is to communicate to the youth of the country the excitements of creative pursuit of science, attract talent to the study of science at an early age and thus build the required critical human resource pool for strengthening and expanding the Science & Technology system and R & D base.
- INSPIRE Scheme has included three programs:
 - i) Scheme for Early Attraction of Talents for Science (**SEATS**)
 - ii) Scholarship for Higher Education (**SHE**)
 - iii) Assured Opportunity for Research Careers (**AORC**)

New Super-Earth Planet

- Astronomers at the **University of Canterbury (UC)** have found a new **Super-Earth planet** towards the genre of the galaxy.
- Researchers discovered the planet using the **gravitational microlensing technique**. The combined gravity of the planet and its host star caused the light from a more distant background star to be magnified in a particular way. The microlensing effect is rare, with only about one in a million stars in the galaxy being affected at any given time.
- The newly discovered planet is among only a handful of extra-solar planets that have been detected with **both sizes and orbits comparable to that of the Earth**.
- As per the research, the host star of the new planet is about **10% the mass of our Sun**, which in turn makes a **'year' on the planet of approximately 617 days**.
- The new planet would have a **mass somewhere between the Earth and Neptune**, and would **orbit at a location between Venus and Earth from the parent star**.

Gravitational Microlensing Technique

- It is one of the more commonly-used methods for indirectly detecting exoplanets.
- Essentially, this method relies on the gravitational force of distant objects to bend and focus light coming from a star.
- As a planet passes in front of the star relative to the observer (i.e. makes a transit), the light dips measurably, which can then be used to determine the presence of a planet.

Sonic Boom

- The 'loud sound' recently heard in Bengaluru was revealed to have emanated from an **Indian Air Force (IAF) test flight involving a supersonic profile**. The sound effect caused due to such high-speed flights is known as **'sonic boom'**.
- The sonic boom was probably heard while the aircraft was decelerating from supersonic to subsonic speed between 36,000 and 40000 feet altitude.

Sonic Boom

- When an aircraft travels at **supersonic speed – meaning faster than sound (>1225 kmph at sea level)** – the field of sound waves moves to the rear of the craft. A stationary observer thus hears no sound when a supersonic flight approaches, since the sound waves are at the rear of the latter.
- At such speeds, both **newly created as well as old waves, are forced into a region at the aircraft's rear called a 'Mach cone'**, which extends from the craft and intercepts the Earth in a hyperbola-shaped curve, and leaves a trail called the **'boom carpet'**. **The loud sound that is heard on the Earth when this happens is called a 'sonic boom'**.
- In air, the speed of sound waves depends on a number of **factors, such as the temperature of the air and altitude**.
- When such aircraft fly at a low altitude, the sonic boom can become intense enough to **cause glass to crack or cause health hazards. Overland supersonic flights have thus been banned in many countries**.

Supersonic flights

- In **1947**, the American military pilot Chuck Yeager became the first to breach the sound barrier, flying the Bell X-1 aircraft at 1127 kmph. Since then, many supersonic flights have followed, with advanced designs allowing speeds of over Mach 3, or three times the speed of sound.
- According to the Indian Air Force website, India's fastest jets include the **Sukhoi SU-30 MKI (Mach 2.35) and the Mirage-2000 (Mach 2.3)**.

Eventbot

- The **Indian Computer Emergency Response Team (CERT-In)** has issued an advisory warning people against a trojan called **EventBot**.
- The **EventBot is a banking trojan or a banker Trojan** that specifically targets the financial apps on the phone and **steals the financial data** of its victim. A trojan is essentially a type of malware that is attached to what seems to be a legit programme.
- It abuses Android's in-built accessibility features to steal user data from financial applications and read user SMS messages, allowing malware to bypass two-factor authentication.
- CERT-In has suggested certain **countermeasures** for Android phone users to save themselves from the virus infection:
 - **Not downloading or installing applications from untrusted sources** like unknown websites or links sent over mail or SMS.
 - **Consider app reviews, details, number of downloads, and user reviews** of an app before downloading from the Play Store.
 - **Exercise caution while tapping on URLs** and avoid using unsecured or unknown Wi-Fi networks.
 - **Installing an updated antivirus solution** and keeping the phone updated with the latest Android updates and patches.

Space-X Demo 2 Mission

- Elon Musk's **SpaceX** has become the first private company to launch human beings into orbit, after its **Falcon 9 rocket and Crew Dragon spacecraft** — carrying two NASA astronauts — successfully blasted off from the **Kennedy Space Center** in Florida, U.S.A.

- **The SpaceX Crew Dragon capsule is only the fifth class of US spacecraft to take human beings into orbit, after the storied Mercury, Gemini, Apollo and Space Shuttle programs.**
- The launch was particularly significant as it **marked the first instance that astronauts have been launched from US soil since the STS-135 mission in July, 2011**, following which all astronauts were flown to the International Space Station in **Russia's Soyuz Capsule**.
- The Demo-2 mission is **part of NASA's Commercial Crew Program** and the main objective of this program is to **make access to space easier in terms of its cost**, so that cargo and crew can be easily transported to and from the ISS, enabling greater scientific research.
- Boeing and SpaceX were selected by NASA in **September 2014 to develop transportation systems** meant to transfer crew from the US to the ISS
- **Significance:**
 - It marks the first time commercially developed space vehicles, owned and operated by a private entity rather than NASA, have carried Americans into orbit. With this launch, NASA is heralding a new chapter in space exploration, where private companies will have a bigger role to play.
 - The launch represents another milestone for the reusable rockets to make spaceflight less costly and more frequent.

NASA's Commercial Crew Program

- NASA's **Commercial Crew Program (CCP)** was formed to facilitate the **development of a U.S. commercial crew space transportation capability** with the goal of achieving safe, reliable and cost-effective access to and from the **International Space Station and low-Earth orbit**.
- Through this program, NASA plans to **lower its costs by sharing them with commercial partners such as Boeing and SpaceX**, and also gives the companies the incentive to design and build the Commercial Orbital Transportation Services (COTS).
- Commercial transportation to and from the station will **provide expanded utility, additional research time and broader opportunities** of discovery on the orbiting laboratory. The station is critical for NASA to understand and overcome the challenges of long-duration spaceflight necessary for the journey to Mars.
- By encouraging industry to provide human transportation services to and from low-Earth orbit, **NASA can expand its focus on building spacecraft and rockets for deep space missions**.
- NASA's Commercial Crew Program is **aimed at ending the US reliance on Russian spacecraft for ferrying astronauts to the ISS**. This is also part of a broader NASA push for commercial partnerships.

Falcon 9 Launch Vehicle

- Falcon 9 is a **two-stage rocket** designed and manufactured by SpaceX for the reliable and **safe transport of satellites and the Dragon spacecraft into orbit**.
- Falcon 9, along with the Dragon spacecraft, was designed from the outset **to deliver humans into space**.
- Falcon 9 is the **first orbital class rocket capable of reflight**. The Falcon 9 booster **is reusable** which is the key breakthrough needed to reduce the cost of access to space and enable people to live on other planets.
- It made history **in 2012 when it delivered Dragon into the correct orbit** for rendezvous with the International Space Station, making SpaceX the first commercial company ever to visit the station.

Closest Black Hole to Earth Discovered

- Astronomers have spotted the closest black hole to Earth ever discovered. The black hole, **at least 4.2 times the mass of the sun**, is **gravitationally bound to two stars in a so-called triple system** roughly 1,000 light years from Earth. A light year is the distance light travels in a year, 5.9 trillion miles (9.5 trillion km).
- This triple system, **called HR 6819**, can be **seen from Earth's southern hemisphere** with the naked eye, in the constellation Telescopium. Until now, the closest-known black hole was one perhaps three times further away.
- /Black holes are **extraordinarily dense objects possessing gravitational pulls so powerful that not even light can escape**. Some are monstrous like the one at our galaxy's centre 26,000 light years from Earth that is four million times the sun's mass.
- The newly discovered one has the mass of a single star. It probably began its life as a star up to 20 times the sun's mass that collapsed into a black hole at the end of its relatively short lifespan.

Important Dates/Days

- **National Technology Day - May 11**
 - The day has a historical perspective.
 - On May 11, 1998, India successfully carried out nuclear tests at Pokhran.
 - The first indigenous aircraft "Hansa-3" was test flown at Bangalore on this day; and
 - India also performed successful test firing of the Trishul missile on the same day.
- **International Nurses Day**, is annually observed on May 12 to commemorate the birth of *Florence Nightingale*, the foundational philosopher of modern nursing. The event, established in 1974 by the International Council of Nurses (ICN), also serves to highlight the important role nurses fulfill in health care. This year's theme is Nursing the world to health. This year the day assumes even more significance as the WHO has designated 2020 as the **International Year of the Nurse and the Midwife**.
- **National Dengue Day: May 16**
 - **Dengue** is a **mosquito-borne viral** infection.
 - The dengue virus (DEN) comprises **four distinct serotypes** (DEN-1, DEN-2, DEN-3 and DEN-4) which belong to the **genus Flavivirus**, family Flaviviridae.
 - The **Aedes aegypti mosquito** is the main vector that transmits the viruses that cause dengue.
- **International Day of Light: 16 May** - It is the **anniversary** of the first **successful operation of the laser** in 1960 by physicist and engineer, **Theodore Maiman**.
- **World No Tobacco Day: May 31 - Theme** - Protecting youth from industry manipulation and preventing them from tobacco and nicotine use

Person in News

- **Professor Shobhana Narasimhan** from the **Theoretical Sciences Unit (TSU)** at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) has been elected as an International Honorary Member to the **American Academy of Arts and Sciences (AAAS)**.
 - The AAAS honours scholars and leaders who have distinguished themselves in the sciences, arts, humanities and public life. The list of previous International Honorary Members includes **Charles Darwin, Albert Einstein and Nelson Mandela**.

- Other Awards and Recognition For Her - Fellow of the **National Academy of Sciences, India** in 2011, **Stree Shakti Samman Science Award** in 2010, and the **Kalpana Chawla Woman Scientist Award** of the Government of **Karnataka** in **2010**.
- Professor **Saurabh Lodha** from Indian Institute of Technology (IIT) Bombay has received the **Young Career Award in Nano Science and Technology** for his contributions in development of **logic transistor technologies** beyond silicon and nanoelectronic devices based on **two-dimensional Van der Waals materials**. The award is conferred by the Department of Science and Technology (DST).