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1. Nominations for World Heritage List for the year 2020

Why in News?

- Nomination dossiers of 'Dholavira: A Harappan City' and 'Monuments and Forts of Deccan Sultanate' have been submitted for inclusion in the World Heritage List for the year 2020 – Culture Minister.

UNESCO World Heritage List:

- This list comprises the UNESCO World Heritage Sites. A World Heritage Site is a landmark or an area selected by the UNESCO for having cultural, historical, scientific or other form of significance, which is legally protected by international treaties.

- The sites are regarded important for the collective and preservative interests of humanity.

- To be selected, a World Heritage Site must be an already-classified landmark, unique in some respect as a geographically and historically identifiable place having special cultural or physical significance.

- The sites are intended for practical conservation for posterity, which otherwise would be subject to risk from human or animal trespassing, unmonitored/uncontrolled/unrestricted access, or threat from local administrative negligence.

- The list is maintained by the international World Heritage Program administered by the UNESCO World Heritage Committee, composed of 21 "states parties" that are elected by their General Assembly.

- As of July 2019, a total of 1,121 World Heritage Sites exist across 167 countries. The maximum number of sites in one country is 55, both China and Italy having 55 each. India is in fifth position with 38 sites.

- The first place to be declared a World Heritage Site: City of Quito (capital of Ecuador) in 1978.

Tentative Lists:

- States Parties are encouraged to submit Tentative Lists to the UNESCO.
- This list consists of properties which they consider to be cultural and/or natural heritage of outstanding universal value and therefore suitable for inscription on the World Heritage List.
- The Tentative List should be submitted at least one year prior to the submission of any nomination.
- Nominations to the World Heritage List will not be considered unless the nominated property has already been included on the State Party's Tentative List.
- Both Dholavira and the Deccan Sultanate forts and monuments are included in India's Tentative List. There are another 40 sites in the Indian list.
- Both were submitted in 2014.

Dholavira: A Harappan City:

- Dholavira is located in the Khadir Island in the Rann of Kutch in Gujarat.
- It belonged to the Mature Harappan Phase.
- It is a fortified quadrangular city set in a harsh and arid land. It was once a thriving metropolis for 1200 years between 3000 BCE and 1800 BCE.
- It had access to the sea.
- The city's ruins show large-scale use of dressed stone in construction.
- Highly polished stone pillars of square or circular section having a central hole are also seen.
- To create a pillar, such segments were piled to attain the requisite height and a wooden pole was inserted to ensure stability. This method of constructing a column was an ingenious alternative to a monolithic column.
- The city also had an excellent water conservation system that ensured regular water supply to the parched land.
- Many antiquities have also been found during excavations.

Why is it included in the list?

- The excavated site demonstrates the ingenuity of the Harappan people to evolve a highly organised system of town planning with perfected proportions, interrelation of functional areas, street pattern and an efficient water conservation system that supported life for more than 1200 years in a hot and arid climate.

- Its water management system was one of the most efficient in the ancient world.
- The city had a three-tier zonation comprising of distinct upper (citadel, bailey) and middle (having a distinct street-pattern, large scale enclosure and a ceremonial ground) towns enclosed by a lower town (with narrower streets, smaller enclosures and industrial area – this feature distinguishes it from the other metropolises of the Indus Valley Civilisation.
- The importance of Dholavira's planning was furthered with the excavation of Kampilya in Uttar Pradesh, a city considered of mythical origin in the Gangetic plains. Belonging to the Gangetic Civilization, which is considered the second phase of urbanization of the Indian subcontinent, Kampilya adopted the town planning principles (in terms of scale, hierarchy of space and road network) established in Dholavira.
- The area is protected and managed by the Archaeological Survey of India (ASI).
- Globally, Dholavira can be compared to the cities of the Ancient River Valley Civilization, the urban metropolises of the Egyptian, Chinese and Mesopotamian civilisations.
- In the region, Dholavira can be compared to the other major cities of Harappan culture like Mohenjodaro, Harappa, Kalibangan, Rakhigarhi, Banavali and Lothal. The excavated remains of the complete water system distinguish this site from others.

Monuments and Forts of the Deccan Sultanate:

- The 'Monuments of the Deccan Sultanate' is a serial property comprising of four components.
- They constitute the most representative, most authentic and best-conserved examples of Deccani Sultanate monuments in India.
- The series demonstrates the exemplary convergence of national and international styles of Islamic architecture and their intersections with the prevalent Hindu architecture of the period in southern India, in present-day Karnataka and Andhra Pradesh.
- The contributions of Deccan Sultanate to the arts and architecture of India is impressive with iconic Indo-Islamic monuments constructed in Gulbarga, Bidar, Bijapur and Hyderabad. These sites emerged as important medieval fortifications and walled cities of the Deccan Sultanates with a vigorous new architectural style of the sultanate that emerged from encounters with the Deccan Hindu heartland of the period.
- Individually, each of the components of the Deccan Sultanate cover important aspects of Sultanate history with Gulbarga evolving as the first capital of the Bahmani Kingdoms in mid-14th century CE including its impressive fortifications, Jami Masjid and royal tombs.

- Bidar emerged as the next Bahmani capital in the mid-15th Century CE.
- Further evolution of the Deccani Sultanate style was done by the Adil Shahi dynasty in the monuments at Bijapur such as the Gol Gumbaz that stands as the 2nd largest dome in world history.
- The final diversification and manifestation of the style is seen in the Qutub Shahi monuments of Golconda fort, tombs and the Charminar at Hyderabad. The iconic Charminar is a ceremonial gateway built to celebrate the foundation of Hyderabad in 1591 A.D.
- Subtly blending influences from Iran, West Asia, southern India, and sometimes Europe, as well as southern and northern India, the arts produced under these Deccan sultanates are markedly different from those of the rest of India and especially from those created under the Mughal patronage.
- The monuments and citadels provide a unique testimony to the social, economic, cultural, political and technological landscape of the period as well as unique expressions of the religious and artistic flowering of the Islamic Sultanate in Southern India.
- The monuments were also accompanied by the development of syncretic forms of art, architecture, language, literature, music, cuisine and costume.

2. Curative petition

Why in News?

- Curative petition is the last to last resort in the line of due justice being given and the last opportunity of the unheard being heard.

Curative Petition:

- A curative petition is the final and last option for the people to acquire justice as mentioned and promised by the Constitution of India.
- The concept originated from the case of Rupa Ashok Hurra Vs. Ashok Hurra and others where the following question arose before the court of law- 'whether an aggrieved person is entitled to any relief against the final judgment/order of the Supreme Court, after the dismissal of a review petition?' The court used the Latin maxim "actus curiae neminem gravabit", which means that an act of the court shall prejudice no one.
- The maxim becomes applicable when the court is under an obligation to undo a wrong done to a party by the act of court itself.

- This led to the creation of the concept of a curative petition by the Supreme Court and the reason given for such creation was preventing the abuse of the process of law and to cure the lapses in the existing system of justice.

How is Curative Petition Different?

- A curative petition is a way to ask the court to review and revise their own decision even after a review petition is dismissed or used.

- But, the court has been very cautious in the use of such a petition. The court clearly stated that such kind of petitions must be rare instead of regular.

- To ensure it, the court in its guidelines to file the petition stated that to file such a petition a gross violation of a principle of natural justice by the court needs to be proved by the contending party, unlike other petitions.

- Also to prove such violations, a senior advocate needs to certify and point out substantial grounds for the petition to be entertained.

- The same would be reviewed by the three senior-most judges of the court alongside the judges who passed the judgement, and if the majority feels that there was a violation, the curative petition would be heard by the same bench.

- Adding to the speciality, a curative petition is not governed by the provisions of the Limitations Act but the court made it clear that it needs to be filed within a reasonable time.

Curative Petition

The concept of curative petition was first evolved by the Supreme Court of India in the matter of *Rupa Ashok Hurra vs. Ashok Hurra and Anr. (2002)*; MANU/SC/0910/2002.

This power can be exercised by Supreme Court:
1. in order to prevent abuse of its process, and
2. to cure gross miscarriage of justice.

The curative petition entitles the aggrieved person to certain relief against a final judgment of the Supreme Court after dismissal of review petition either under Article 32 or otherwise.

The concept of a curative petition is an extra constitutional judicial device to cure gross miscarriage of justice and abuse of process.

It is not to be heard in an open court unless specifically directed and the same bench which passed the review order hears it generally as far as possible.

What does this mean for the Nirbhaya Convicts?

- A curative petition is the last legal recourse available to the convicts.
- Going by the procedure regarding pointing out substantial grounds, the lawyer of convict Vinay Sharma, has placed the argument that young age and the socio-economic background should be considered as mitigating factors.
- Interestingly, the advocate challenged the reasoning given by the Supreme Court, pointing out reports and studies by law universities and National Crime Records Bureau which state that a death sentence won't have any deterrent effect on the society, which is the reason on which the sentencing by SC was based.
- With the existing media and political pressure on this case from the beginning, it'll be interesting to see the fallout of the petition, which would, for sure, go down as one of the most landmark judgments in the history of this nation's legal system.

3. Supreme court ruling on Cryptocurrency

Why in News?

- The Supreme Court set aside a ban by the Reserve Bank of India (RBI) on banks and financial institutions from dealing with virtual currency holders and exchanges.

Highlights:

- Virtual currency is the larger umbrella term for all forms of non-fiat currency being traded online. Virtual currencies are mostly created, distributed and accepted in local virtual networks.
- The court held that the ban did not pass the "proportionality" test. The test of proportionality of any action by the government, the court held, must pass the test of Article 19(1)(g), which states that all citizens of the country will have the right to practise any profession, or carry on any occupation or trade and business.

Reasons for RBI to Ban Cryptocurrency:

- Owing to the lack of any underlying fiat, episodes of excessive volatility in their value, and their anonymous nature which goes against global money-laundering rules.
- Risks and concerns about data security and consumer protection on the one hand, and far-reaching potential impact on the effectiveness of monetary policy.
- The RBI argues that owing to a significant spurt in the valuation of many virtual currencies and rapid growth in initial coin offerings, virtual currencies were not safe for use.

Cryptocurrency:

- There is no globally accepted definition of what exactly is virtual currency. Some agencies have called it a method of exchange of value; others have labelled it a goods item, product or commodity.

- Cryptocurrencies have an extra layer of security, in the form of encryption algorithms. Cryptographic methods are used to make the currency as well as the network on which they are being traded, secure.

- Most cryptocurrencies now operate on the blockchain or distributed ledger technology, which allows everyone on the network to keep track of the transactions occurring globally. This essentially meant there would be no central regulator for virtual currencies as they would be placed in a globally visible ledger, accessible to all the users of the technology.

- All users of such virtual currencies would be able to see and keep track of the transactions taking place.

4. President rejects mercy petition of convict in Nirbhaya case

Why in News?

- President Ram Nath Kovind has rejected the mercy petition of Pawan Gupta, one of the four death row convicts in the 2012 Nirbhaya gang-rape and murder case.

Highlights:

- Gupta was the last convict to file a mercy petition.

- This comes after a Delhi court stayed for the third time the death sentence of four convicts in the case observing that they cannot be executed while a mercy petition is pending before the President.

Mercy Petition:

- There is no statutory written procedure for dealing with mercy petitions, but in practice, after extinguishing all the reliefs in the court of law, either the convict in person or his relative on his behalf may submit a written petition to the President.

- The petitions are received by the President's secretariat on behalf of the President, which is then forwarded to the Ministry of Home Affairs for their comments and recommendations.

- A convict under the sentence of death is allowed to make the petition within a period of seven days after the date on which the Superintendent of jail informs him about the dismissal of the appeal or special leave to appeal by the Supreme Court.

- The Home Ministry in consultation with the concerned State Government discusses the merits of the petition. After the consultation, recommendations are made by the Home Minister and then, the petition is sent back to the President for his decision.

What Happens when a Convict Moves a Mercy Petition?

- In case, the petition is filed within seven days then it is the duty of the Jail Superintendent to stay the execution of the death sentence.
- However, this does not mean that after the expiry of seven days a convict cannot file a mercy petition.
- In such exceptional cases or intervening circumstances, it is the concerned state government that will decide the question of deferring the death sentence.

President's Pardoning power:

Article 72 of the Indian constitution provides:

- The President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence—
  1. in all cases where the punishment or sentence is by a Court Martial;
  2. in all cases where the punishment or sentence is for an offence against any law relating to a matter to which the executive power of the Union extends;
  3. in all cases where the sentence is a sentence of death.
- Thus, Article 72 empowers the President to grant pardons, etc., and to suspend, remit or commute sentences in certain cases.

President and Mercy Petition:

Presidential Pardon Power

The president is given the power under the Constitution to "grant reprieves and pardons for offenses against the United States, except in cases of impeachment."

Two types:
- **full** pardon to a person accused or convicted of a **federal crime**, releasing the person from any punishment and restoring her or his Civil Rights.
- **conditional** pardons that forgive the convicted person in part, reduce a penalty a specified number of years, or alter a penalty with conditions.

Exceptions:
Usually a private transaction between the president and an individual. In 1977 President Jimmy carter granted an Amnesty that was, in effect, a **blanket pardon to those who were either deserters or draft evaders during the Vietnam Wa**r. (Jimmy Carter, Proclamation 4483, 1977)

Controversy:
President Nixon was granted a full and unconditional pardon for any crimes he might have committed against the United States while President. (Gerald Ford, Proclamation 4311, September, 1974)

- The President can either accept or reject the mercy plea as per the advice by the council of ministers

- However, the Constitution doesn't provide for a specified time limit to accept/reject the mercy petition.

- He can keep the petition in hold for an indefinite period if he wishes to.

5. EC moots linking Aadhaar with voter ID

Why in News?

- The Law Ministry has informed the Lok Sabha that it has a proposal from the Election Commission (EC) to link the Aadhaar card with the Election Photo Identity Card (EPIC) to prepare an error free electoral Roll.

Representation of Peoples Act 1951 (RPI Act 1951)

- **Representation of Peoples Act 1951** is an act enacted by the Indian provincial parliament before first general elections.

- The People's Representation act provides for the actual conduct of elections in India.

- The act also deals with details like qualification and disqualification of members of both houses of Parliament (ie Loksabha and Rajyasabha) and the state legislatures (ie. State Legislative Assembly and State Legislative Council).

- Rules for the mode of conduct of elections is highlighted in detail.

Highlights:

- A proposal to amend the Representation of People's Act 1951 to enable linking of the electoral data with the Aadhaar system has been received from the Election Commission.

- In response to an unstarred question recently, the Law Ministry said 'the matter is under consideration'.

Rationale:

- The move is expected to ensure preparation of an error free electoral roll, and to prevent duplication of entries.

- Government officials asserted that the issue had come up about three weeks ago in a meeting between Chief Election Commissioner (CEC) Sunil Arora, Election Commissioners Ashok Lavasa and Sunil Chandra and Secretary Legislative Department G. Narayana Raju when they had discussed pending electoral reforms.

- One of the arguments being made in favour of the move is that it may allow migrant labour and workers to vote even if they are away from their homes at the time of elections.

- The process of seeding Aadhaar with the voter ID card had started in 2012 during his tenure but was subsequently stalled because of a pending litigation on Aadhaar.

- The move will help in getting rid of fraudulent voters but will also help easy movement of voters once Aadhaar system and election data is linked.

6. Pyramid of Djoser

Why in News?

- Last week, Egypt reopened the Pyramid of Djoser, the first pyramid ever built, after a 14-year restoration costing nearly $6.6 million.

Highlights:

- The pyramid had sustained serious damage during an earthquake in 1992, and was on the verge of collapse when renovations started in 2006.

- The old structure is believed to be designed by Imhotep, described by some as the first architect of the world.

- The 4,700-year-old pyramid is 60 metres tall, and consists of six stacked steps over a burial shaft tomb 28 metres deep and seven metres wide.

- It is located at the Saqqara archaeological site, 24 km southwest of Cairo, outside the royal capital of Memphis.

- A complex of halls and courts is located around the pyramid. A UNESCO world heritage site, the pyramid was constructed during the era of Pharaoh Djoser, the second king of Ancient Egypt's Third Dynasty (2650 BC– 2575 BC).

- The Pharaoh's 19-year reign saw significant technical innovations in stone architecture. Restoration work for the pyramid, which began in 2006, was stopped in 2011 after a popular uprising in Egypt led to the ouster of longtime President Hosni Mubarak. The work resumed at the end of 2013. The project saw efforts to prevent the pyramid from collapsing, and external and internal restoration, including of the paths leading to the pyramid and the internal corridors leading to the burial chamber.

- The sarcophagus of King Djoser was also restored, along with the walls of the burial shaft tomb.

7. Epidemic Diseases Act

Why in News?

- The cabinet secretary has recently announced that all states and Union Territories should invoke provisions of Section 2 of the Epidemic Diseases Act, 1897 by means of which all advisories issued by the Union health ministry and state governments from time to time are enforceable.

COVID-19 in India:

- At present, at least 60 COVID-19 cases have been confirmed in India.
- Around the world, more than 119,100 people have been infected and nearly 4,300 have died, according to a Reuters tally of Government Announcements.

History of the 1897 Epidemic Diseases Act:

- The Epidemic Diseases Act is routinely enforced across the country for dealing with outbreaks of diseases such as swine flu, dengue, and cholera.

- The colonial government introduced the Act to tackle the epidemic of bubonic plague that had spread in the erstwhile Bombay Presidency in the 1890s.

THE EPIDEMIC DISEASE ACT,1897

- An Act to provide for the better prevention of the spread of Dangerous Epidemic Diseases.
- The Act provides power to exercise for the control and to prevent any epidemic or spread of epidemic in the States or Country.
- The states may authorise any of its officers or agency to take such measures if the state feel that the public at large is threaten with an outbreak of any dangerous epidemic.
- Any person disobeying any regulation or order made under this Act shall be deemed to have committed an offence punishable under section 188 of the Indian Penal Code.

- Using powers conferred by the Act, colonies authorities would search suspected plague cases in homes and among passengers, with forcible segregations, evacuations, and demolitions of infected places.

- Historians have criticized the Act for its potential for abuse.

- In 1897, the year the law was enforced, freedom fighter Bal Gangadhar Tilak was punished with 18 months' rigorous imprisonment after his newspapers Kesari and Mahratta admonished imperial authorities for their handling of the plague epidemic.

- **Provisions of the 1897 Epidemic Diseases Act:**
  - ✓ The Act, which consists of four sections, aims to provide "for the better prevention of the spread of Dangerous Epidemic Diseases."
  - ✓ Section 2 empowers state governments/UTs to take special measures and formulate regulations for containing the outbreak.
  - ✓ It reads: Power to take special measures and prescribe regulations as to dangerous epidemic disease—
  1. When at any time the State Government is satisfied that the State or any part thereof is visited by, or threatened with, an outbreak of any dangerous epidemic disease, the State Government, if it thinks that the ordinary provisions of the law for the time being in force are insufficient for the purpose, may take, or require or empower any person to take, such measures and, by public notice, prescribe such temporary regulations to be

observed by the public or by any person or class of persons as it shall deem necessary to prevent the outbreak of such disease or the spread thereof, and may determine in what manner and by whom any expenses incurred (including compensation if any) shall be defrayed.

2. In particular and without prejudice to the generality of the foregoing provisions, the State Government may take measures and prescribe regulations for the inspection of persons travelling by railway or otherwise, and the segregation, in hospital, temporary accommodation or otherwise, of persons suspected by the inspecting officer of being infected with any such disease."

- Section 3 provides penalties for disobeying any regulation or order made under the Act.
- These are according to section 188 of the Indian Penal Code (Disobedience to order duly promulgated by public servant).
- Section 4 gives legal protection to the implementing officers acting under the Act.

Past Implementation:

- In 2018, the district collector of Gujarat's Vadodara issued a notification under the Act declaring the Khedkarmsiya village in Waghodia taluka as cholera-affected after 31 persons complained of symptoms of the disease.
- In 2015, to deal with malaria and dengue in Chandigarh, the Act was implemented and controlling officers were instructed to ensure the issuance of notices and challans of Rs 500 to offenders. In 2009, to tackle the swine flu outbreak in Pune, Section 2 powers were used to open screening centres in civic hospitals across the city, and swine flu was declared a notifiable disease.

8. National Archives of India

Why in News?

- An exhibition named Jallianwala Bagh was recently inaugurated in New Delhi on the occasion of 130th Foundation Day of National Archives of India.

Highlights:

- The present exhibition was primarily presented with the help of original and digital copies of archival documents relating to the Jallianwala Bagh Massacre available in National Archives of India.
- This is an earnest attempt to portray the relentless struggle of the Indian people against the British tyranny through the record holdings.

- Based on the original documents, this exhibition is an endeavor to commemorate the centenary of Jallianwala Bagh Massacre.

National Archives of India:

- The National Archives of India is the custodian of the records of enduring value of the Government of India.
- It was established on 11 March, 1891 at Calcutta (Kolkata) as the Imperial Record Department.
- It is the biggest archival repository in South Asia.
- It has a vast corpus of records viz., public records, private papers, oriental records, cartographic records and microfilms, which constitute an invaluable source of information for scholars-administrators and users of archives.
- The Director General of Archives, heading the Department has been given the mandate for the implementation of the Public Records Act, 1993 and the rules made there under, the Public Records Rules, 1997 for the management, administration and preservation of public records in the Ministries, Departments, Public Sector undertakings etc. of the Central Government.
- The Department functions as an Attached Office of the Ministry of Culture.

9. Major Port Authorities Bill 2020

Why in News?

- Major Port Authorities Bill 2020 was introduced in the Lok Sabha by the Minister of State for Shipping recently.

Highlights:

- The Ministry of Shipping has proposed to replace the Major Port Trusts Act, 1963 by the Major Port Authorities Bill, 2020.
- This will empower the Major Ports to perform with greater efficiency on account of full autonomy in decision making and by modernizing the institutional framework of Major Ports. It would help to impart faster and transparent decision making benefiting the stakeholders and better project execution capability.
- The Bill is aimed at reorienting the governance model in central ports to landlord port model in line with the successful global practice.

- This will also help in bringing transparency in operations of Major Ports.

Salient Features:

- It is compact in comparison to the Major Port Trusts Act, 1963 as the number of sections has been reduced to 76 from 134 by eliminating overlapping and obsolete Sections.
- The Bill has proposed a simplified composition of the Board of Port Authority which will comprise of 11 to 13 Members.
- A compact Board with professional independent Members will strengthen decision making and strategic planning. The role of Tariff Authority for Major Ports (TAMP) has been redefined. Port Authority has now been given powers to fix tariff which will act as a reference tariff for purposes of bidding for PPP projects.
- PPP operators will be free to fix tariff based on market conditions.
- The Board of Port Authority has been delegated the power to fix the scale of rates for other port services and assets including land.

Objective:

- The Bill seeks to provide for regulation, operation and planning of Major Ports in India and to vest the administration, control and management of such ports upon the Boards of Major Port Authorities and for matters connected therewith or incidental thereto.
- To promote the expansion of port infrastructure and facilitate trade and commerce.
- It aims at decentralizing decision making and to infuse professionalism in governance of major ports.

10. Lok Sabha Passes Appropriation Bill

Why in News?

- The Lok Sabha passed the Appropriation Bill 2020-21, authorising the government to draw funds from the Consolidated Fund of India for its working as well as implementation of its programmes and schemes.

Highlights:

- The house passed the bill after the Speaker applied 'guillotine' on demands of grants for various ministries.
- With parliament having very limited time for scrutinising the expenditure demands of all the ministries, after a pre-decided period of discussions over spending envisaged in the budget for some ministries is over, a guillotine is applied.

- Once the speaker applies the guillotine, all the outstanding demands for grants, whether discussed or not, are put to vote at once. After this, appropriation bill is taken into consideration.

Government Accounts:

Consolidated Fund of India:

- This is the chief account of the Government of India. The inflow to this fund is by way of taxes like Income Tax, Central Excise, Customs and also non-tax revenues which arise to the government in connection with the conduct of its business.

- Loans raised by issue of treasury bills are also received in this fund. The government meets all its expenditure including loan repayments from this fund.

- No amount can be withdrawn from the fund without the authorisation from the Parliament. This fund is formed under the provision of Aricle 266 (1) of the Indian Constitution.

Contingency Fund of India:

- The Contingency Fund of India is set up in the nature of an imprest account under Article 267 (1) of the Constitution of India. The corpus of this fund is Rs. 500 crores. Advances from the fund are made for the purposes of meeting unforeseen expenditure by the President of India.

- The Secretary to the Government of India, Ministry of Finance, Department of Economic Affairs holds the fund on behalf of the President of India.

Public Account:

- The Public Account is constituted under Article 266 (2) of the Constitution. All other public moneys (other than those covered under Consolidated Fund of India) received by or on behalf of the Government of India are credited to the public account of India.

- The receipts under Public Account do not constitute normal receipts of Government. Parliamentary authorization for payments from the Public Account is therefore not required.

11. Medical Termination of Pregnancy (Amendment) Bill, 2020

Why in News?

- The Lok Sabha has passed a Bill to extend the upper limit for permitting abortions from 20 weeks to 24 under special circumstances.

ENSURING SAFETY AND WELL-BEING OF WOMEN

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मेरी सरकार

Amendment in Medical Termination of Pregnancy Bill, 2020

Increase in limit of Pregnancy termination **from 20 weeks to 24 weeks**

Limit not to apply in case of **substantial foetal abnormalities**

To expand access of women to safe & legal abortion services; **discourage informal abortions**

Identity of women terminating pregnancy not to be revealed unless authorised by law

CABINNET DESISIONS
29 JANUARY 2020

The Medical Termination of Pregnancy (MTP) Act 1971:

- It is a law that legalized abortion in India up to 20 weeks of pregnancy, based on certain conditions and when provided by a registered medical practitioner at a registered medical facility.

- As per the provisions of the MTP Act, only the consent of woman whose pregnancy is being terminated is required.

MTP Act 1971	MTP amendment Bill 2020
One registered and recognized Medical Practitioner in opinion to terminate the pregnancy along with the consent of the mother is required to Terminate the pregnancy **till 12th Week**	**One registered and recognized Medical Practitioner** in opinion to terminate the pregnancy along with the consent of the mother is required to Terminate the pregnancy **till 20th Week**
Two or more registered and recognized Medical Practitioner in opinion to terminate the pregnancy along with the consent of the mother is required to Terminate the pregnancy **12th to 20th Week** (In case of Vulnerable women)	**Two or more registered and recognized Medical Practitioner** in opinion to terminate the pregnancy along with the consent of the mother is required to Terminate the pregnancy from **20th to 24th Week** (in case of vulnerable women)
It doesn't mention clearly about the confidentiality and privacy of the women and the case	This amendment emphasizes to **protect the women's privacy and confidentiality** of the data related to termination of pregnancy

- In case of below the age of 18 years, or a mentally ill woman, consent of guardian (MTP Act defines guardian as someone who has the care of the minor. This does not imply that only parent/s are required to consent) is required for termination.
- Provision of Medical Termination of Pregnancy (MTP) Bill, 2020:
- The draft Bill proposes requirement of opinion of one registered medical practitioner (RMP) for termination of pregnancy up to 20 weeks of gestation.
- Similarly, it also provides for the requirement of opinion of two RMPs for termination of pregnancy of 20 to 24 weeks.
- The Bill also seeks to increase the upper gestation limit from 20 to 24 weeks for survivors of rape, victims of incest and other vulnerable women. It will also include minor girls.
- The Bill seeks to relax the contraceptive-failure condition for "any woman or her partner" from the present provision for "only married woman or her husband", allowing them to medically terminate the pregnancy.

Significance of Bill:

- The Bill will provide greater reproductive rights to women as abortion is considered an important aspect of the reproductive health of women.
- Deaths and injuries from unsafe abortions are largely preventable provided services are performed legally by trained practitioners. This will help in decreasing maternal morbidity and mortality and may also help in preventing wastage of resources invested in a pregnancy. The special categories of women include rape survivors, victims of incest, the differently abled and minors.

12. Section 188 IPC

Why in News?

- Delhi and many other states took the Centre's advice to enforce a full lockdown in districts to contain the spread of COVID-19 by imposing Epidemic Diseases Act, 1897.

Epidemic Diseases Act, 1897:

- The orders issued to curb the spread of the coronavirus have been framed under the Epidemic Diseases Act, 1897, which lays down punishment as per Section 188 of the Indian Penal Code, 1860, for flouting such orders –leading to imprisonment of up to 6 months or fine up to Rs 1000 or both.

- In the past, the Act has been routinely enforced across the country for dealing with outbreaks of diseases such as swine flu, dengue, and cholera.
- Its penal provisions are currently being invoked by states to contain the COVID-19 pandemic.

Section 188 of the Indian Penal Code:

- Section 3 of the Epidemic Diseases Act, 1897, provides penalties for disobeying any regulation or order made under the Act.

WHAT DO THE RULES SAY?
- Persons who do not observe home quarantine guidelines shall be quarantined in facilities set up by government
- Every person with travel history to Covid-19-affected countries and having symptoms shall be isolated in a hospital and tested
- No person, institution and organisation shall use any information regarding Covid-19 without ascertaining facts and prior clearance of government
- Private healthcare institutions intending to test Covid-19 must notify state IDSP unit which shall arrange monitoring and testing as per guidelines
- Authorities are empowered to isolate and / or admit into an identified hospital, any person who develops symptoms simulating the Covid-19 infection

WHAT IF AN AREA IS CORONAVIRUS-FREE?
The collector or municipal commissioner shall be competent to implement containment measures including
- Barring entry and exit of population from the containment area
- Closure of schools, offices, cinema halls, swimming pools, gyms, other public places. Banning mass congregations and functions
- Hospital isolation of all suspected cases and their contacts
- Any other measure as directed by health and family welfare department, staff of all government departments of the concerned area shall be at the disposal of the authority

- These are according to Section 188 of the Indian Penal Code (Disobedience to order duly promulgated by public servant).
- Section 188, which comes under the Code's Chapter X, 'Of Contempt of the Lawful Authority of Public Servants', reads:
- "Disobedience to order duly promulgated by public servant. —
   - Whoever, knowing that, by an order promulgated by a public servant lawfully empowered to promulgate such order, he is directed to abstain from a certain act, or to take certain order with certain property in his possession or under his management, disobeys such direction,
   - shall, if such disobedience causes or tends to cause obstruction, annoyance or injury, or risk of obstruction, annoyance or injury, to any persons lawfully employed, be punished with simple imprisonment for a term which may extend to one month or with fine which may extend to two hundred rupees, or with both;
   - and if such disobedience causes or tends to cause danger to human life, health or safety, or causes or tends to cause a riot or affray, shall be punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.

What happens if you Violate the Lockdown Orders?

- **Under Section 188, there Two Offences:**
  - ✓ Disobedience to an order lawfully promulgated by a public servant, If such disobedience causes obstruction, annoyance or injury to persons lawfully employed.
    1. **Punishment:** Simple Imprisonment for 1 month or fine of Rs 200 or both
  - ✓ **If such disobedience causes danger to human life, health or safety, etc.**
    2. **Punishment:** Simple Imprisonment for 6 months or fine of Rs 1000 or both
- According to the First Schedule of the Criminal Procedure Code (CrPC), 1973, both offences are cognizable, bailable, and can be tried by any magistrate.

1. Zonal Councils

Why in News?

- Union Home Minister Amit Shah will chair the 24th meeting of the Eastern Zonal Council, comprising States of Bihar, Jharkhand, Odisha and West Bengal, scheduled to be held in Bhubaneswar.

Highlights:

- Issues such as inter-State water dispute, power transmission, coal royalty, forest clearance for railway and other infrastructure projects and extension of banking and telecom services in rural pockets will figure in the discussion.

- Zonal Councils are advisory councils and are made up of the states of India that have been grouped into five zones to foster cooperation among them. These were set up vide Part-III of the States Reorganisation Act, 1956.

- The North Eastern states are not covered by any of the Zonal Councils and their special problems are addressed by another statutory body, the North Eastern Council, created by the North Eastern Council Act, 1971.
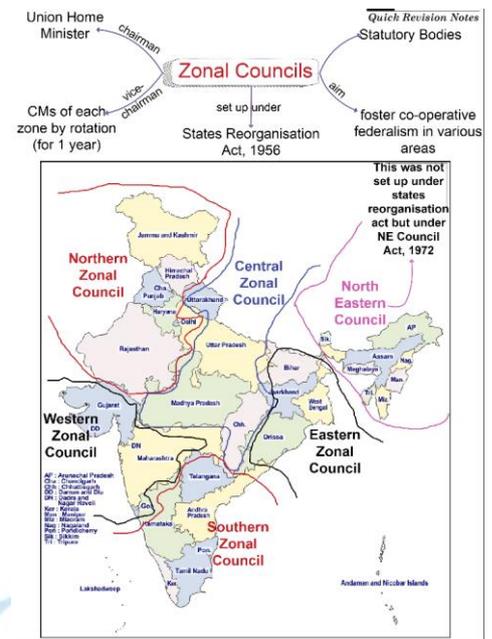
Various Zonal Councils:

- The Northern Zonal Council, comprising the States of Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, National Capital Territory of Delhi and Union Territory of Chandigarh;

- The Central Zonal Council, comprising the States of Chhattisgarh, Uttarakhand, Uttar Pradesh and Madhya Pradesh;

- The Eastern Zonal Council, comprising the States of Bihar, Jharkhand, Orissa, Sikkim and West Bengal; The Western Zonal Council, comprising the States of Goa, Gujarat, Maharashtra and the Union Territories of Daman & Diu and Dadra & Nagar Haveli;

- The Southern Zonal Council, comprising the States of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and the Union Territory of Puducherry.

Structure:

- **Chairman -** The Union Home Minister is the Chairman of each of these Councils.
- **Vice Chairman -** The Chief Ministers of the States included in each zone act as Vice-Chairman of the Zonal Council for that zone by rotation, each holding office for a period of one year at a time.
- **Members-** Chief Minister and two other Ministers as nominated by the Governor from each of the States and two members from Union Territories included in the zone.
- **Advisers-** One person nominated by the Planning Commission for each of the Zonal Councils, Chief Secretaries and another officer/Development Commissioner nominated by each of the States included in the Zone.
- Union Ministers are also invited to participate in the meetings of Zonal Councils depending upon necessity.

Objectives and Functions:

- **The Main Objectives of setting up of Zonal Councils are as under:**
  - ✓ Bringing out national integration;
  - ✓ Arresting the growth of acute State consciousness, regionalism, linguism and particularistic tendencies;
  - ✓ Enabling the Centre and the States to co-operate and exchange ideas and experiences;
  - ✓ Establishing a climate of co-operation amongst the States for successful and speedy execution of development projects.
- **In particular, a Zonal Council may discuss, and make recommendations with regard to:**
  - ✓ Any matter of common interest in the field of economic and social planning;
  - ✓ Any matter concerning border disputes, linguistic minorities or inter-State transport;
  - ✓ Any matter connected with or arising out of, the re-organization of the States under the States Reorganisation Act.

2. National Sports Development Fund

Why in News?

- Under CSR initiative, Security Printing & Minting Corporation of India (SPMCIL) contributes Rs 1 crore towards the National Sports Development Fund.

1. WHAT IS NSDF?
THE NATIONAL SPORTS DEVELOPMENT FUND

01 Imparts momentum and flexibility to assisting the cause of sports.

02 Provides financial assistance for development of infrastructure and other activities for promotion of sports.

03 Helps sports-persons excel by providing them opportunities to train under coaches of international repute with technical, scientific and psychological support and giving them exposure to international competitions.

युवा कार्यक्रम और खेल मंत्रालय
MINISTRY OF
YOUTH AFFAIRS AND SPORTS

National Sports Development Fund (NSDF):

- The Fund was established in 1988 to impart momentum and flexibility to assisting the cause of sports in India.
- The Fund helps sportspersons excel by providing them opportunities to train under coaches of international repute with technical, scientific and psychological support and giving them exposure to international competitions.
- It also provides financial assistance for the development of infrastructure and other activities for the promotion of sports.

NSDF Council:

- The Fund is managed by a Council constituted by the Central Government.
- The Union Minister in charge of Youth Affairs and Sports is the Chairperson of the Council. Members of the Council include senior Officers of the Department of Sports, Chairman & Managing Directors of Private and Public Sector Companies/Corporations, representatives of Sports Promotion Boards, etc.

NSDF Objectives:

- To administer the Fund for prescribed purposes.
- To impart special training and coaching in relevant sports disciplines to sportspersons, coaches and sports specialists.
- To construct and maintain infrastructure for promotion of sports and games.
- To supply sports equipment to organizations and individuals for promotion of sports and games.

- To identify problems and take up research and development studies for providing support to excellence in sports.

- To promote international cooperation, in particular, exchanges which may promote the development of sports.

- To provide low-interest or interest-free loans for projects and activities related to any of the aforesaid objects.

3. Farmer Producer Organisations (FPOs)

Why in News?

- Hon'ble PM is set to launch 10,000 Farmer Producer Organisations (FPOs) all over the country today.

FPO:

- To support farmers in various aspects ranging from input procurement to market linkages, Government of India through Small Farmers' Agribusiness Consortium (SFAC), a registered society is promoting Farmer Producer Organizations (FPOs) by mobilizing the farmers and helping them in registering as companies.

- PO is a generic name for an organization of producers of any produce, e.g., agricultural, non-farm products, artisan products, etc.

The concept of Producers Organisation (PO):

- A Producer Organisation (PO) is a legal entity formed by primary producers, viz. farmers, milk producers, fishermen, weavers, rural artisans, craftsmen.

- A PO can be a producer company, a cooperative society or any other legal form which provides for sharing of profits/benefits among the members.

- In some forms like producer companies, institutions of primary producers can also become member of PO.

What is the need for PO?

- The main aim of PO is to ensure better income for the producers through an organization of their own. Small producers do not have the volume individually (both inputs and produce) to get the benefit of economies of scale.

- Besides, in agricultural marketing, there is a long chain of intermediaries who very often work non-transparently leading to the situation where the producer receives only a small part of the value that the ultimate consumer pays.

- Through aggregation, the primary producers can avail the benefit of economies of scale. They will also have better bargaining power vis-à-vis the bulk buyers of produce and bulk suppliers of inputs.

Why Need FPO?

- Nearly 86% of farmers are small and marginal with average land holdings in the country being less than 1.1 hectares.

- These small, marginal and landless farmers face tremendous challenges during agriculture production phase such as for access to technology, quality seed, fertilizers and pesticides including requisite finances.

- They also face tremendous challenges in marketing their produce due to lack of economic strength. FPOs help in the collectivization of such small, marginal and landless farmers in order to give them the collective strength to deal with such issues.

- Members of the FPO will manage their activities together in the organization to get better access to technology, input, finance and market for faster enhancement of their income.

4. National Apprenticeship Promotion Scheme (NAPS)

Why in News?

- 8.16 lakh candidates benefit from the National Apprenticeship Promotion Scheme.

National Apprenticeship Promotion Scheme (NAPS):

- It was launched with the objective of providing Apprenticeship Training to 50 lakh youth by 2020.

- Under the scheme, the Government will share 25% of the prescribed stipend subject to a maximum of Rs 1500/- per month per apprentice with the employers.
- It has a user friendly on-line portal designed to facilitate easy processing of the entire apprenticeship cycle.
- State Apprenticeship Advisers (SAAs) and Regional Directorates of Apprenticeship (RDAIs) act as implementing agencies in their respective state/Regions.
- To improve the industry connect, Directorate General of Training (DGE&T), M/o Skill Development & Entrepreneurship has adopted the German model of Vocational Education system in India by Introducing Dual System of Training (DST).
- Dual System combines practical training in the industry and theoretical training along with foundation practical in ITI (s) which leads to better ITI — Industry linkage.
- Under this, ITIs (industrial training institutes) are required to enter into a Memorandum of Understanding (MoU) with industries under information to the respective State.

5. Prime Minister's Employment Generation Programme

Why in News?

- A Meeting was held recently to review some of the key schemes of Ministry of Micro, Small and medium Enterprises (MSME) which generate large number of jobs with low capital investment.

Highlights:

- The focus of the meeting was on the Prime Minister's Employment Generation Programme (PMEGP), a flagship scheme of the Ministry of MSME, and Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE).
- In addition, the issue of restructuring of stressed loans to MSMEs was also discussed to find a way forward to support MSMEs. The cut-off date for restructuring of loans to MSMEs has been extended up to 31st December 2020.
- The work done by the Banks in supporting setting up large number of enterprises under PMEGP over the past years, was commended, which has particularly seen a two-fold increase in last Financial Year when more than 73,000 micro enterprises were assisted.
- To give further boost to the scheme, the target in the current year has been increased to support the establishments of 80,000 units.

- Discussions were also held with Banks on increasing the reach of Credit Guarantee scheme. Government has set a target of increasing credit guarantee to Rs. 50,000 crores under this scheme, which is a jump of about 67% over the last year.

Prime Minister's Employment Generation Programme:

- Prime Minister's Employment Generation Programme (PMEGP) is a credit-linked subsidy programme introduced by the government of India in 2008.

- It promotes self-employment through setting up of micro enterprises, where subsidy up to 35 % is provided by the Government through Ministry of MSME for loans up to Rs. 25 lakhs in manufacturing and Rs 10 lakhs in service sector.
- The scheme is administered by Ministry of Micro, Small and medium Enterprises.
- The PMEGP Scheme is being implemented by Khadi and Village Industries Commission (KVIC) at the national level.
- At the State level, the Scheme is being implemented through State Khadi and Village Industries Commission Directorates, State Khadi and Village Industries Boards and District Industries Centres and banks.
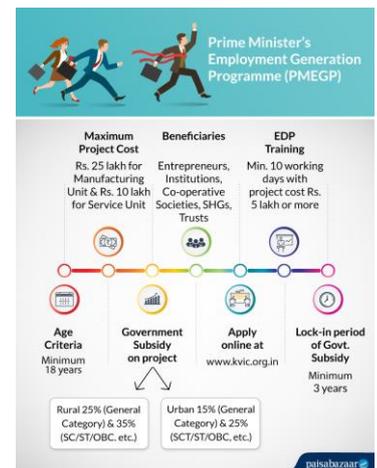
Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):

About CGTMSE

- At beginning the Scheme shall be known as the Credit Guarantee Fund Scheme for Small Industries (CGFSI) But Subsequent the Trust was Renamed as Credit Guarantee Fund Trust for Micro and Small Enterprises. Under the scheme, loan up to 100 lakhs is available
- CGTMSE came into force from august 1,2000. It is set up as trust and administered by Board of Trustees.
- CGTMSE is committed to facilitate collateral free credit to the MSE sector across the country and work diligently towards achievement of the goals of financial inclusion.
- The progress of guarantee coverage under CGS has picked up during the past few years with a total of 2,43,981 guarantees for an amount of Rs.13,783.98 crore being approved during the financial year.
- CGTMSE will include small road and water transport operators, small business, professionals and self employed person and all other service enterprises under the ambit of micro and small enterprises.
- National Small Industries Corporation Ltd. and SIDBI is only lending institutions who disbursed loans under this scheme.

- The scheme was launched by the Government of India to make available collateral-free credit to the micro and small enterprise sector.
- Both the existing and the new enterprises are eligible to be covered under the scheme.
- The Ministry of Micro, Small and Medium Enterprises, GoI and Small Industries Development Bank of India (SIDBI), established a Trust named CGTMSE to implement the Credit Guarantee Fund Scheme for Micro and Small Enterprises.
- Since its inception, CGTMSE has facilitated easy access to credit from organized banking sector to first generation entrepreneurs in the Micro and Small Enterprises (MSE) sector.
- CGTMSE, in turn, provides guarantee to its registered Member Lending Institutions (MLIs) against the loans / credit facilities upto Rs. 100 lakh extended by them without taking any collateral security and / or third Party Guarantee.

6. Mission Purvodaya

Why in News?

- A workshop on "Enabling Procedures for Increase of Steel Usage for the Growth of Economy" was conducted at Bhubaneswar, Odisha recently.

Highlights:

- The workshop was organised by Ministry of Steel in partnership with Ministry of Economy, Trade and Industry (METI) Government of Japan and Confederation of Indian Industries (CII).
- With Japan as the partner country, India is looking forward to make Odisha, the nerve centre of Purvodaya in Steel sector.
- Beyond just producing primary steel, it is envisioned to create an ecosystem of ancilliary, value added products, capital goods with industry participation.

Mission Purvodaya:

- Mission Purvodaya is an initiative launched in 2020 for accelerated development of Eastern India and thus driving the national growth and propelling India towards becoming a $5 trillion economy.
- Accelerated development of eastern India through integrated steel hub in Kolkata, West Bengal.

- The eastern states of India i.e. Odisha, Jharkhand, Chhattisgarh, West Bengal and northern part of Andhra Pradesh which collectively hold 80% of the country's iron ore, 100% of coking coal and significant portion of chromite, bauxite and dolomite reserves are to be focused.
- Through this programme, the government aims to transform logistics and utilities infrastructure which would change the socio-economic landscape in the eastern India.
- The steps, under mission, also include growth of steel industry along with employment opportunities across the entire value chain.

Integrated Steel Hub:

- The steel hub encompasses Odisha, Jharkhand, Chhattisgarh, West Bengal and Northern Andhra Pradesh.
- It aims to attract investment of nearly $70 billion in the steel sector and spur economic growth across eastern India.
- It is a part of Mission Purvodaya initiative which has been launched for the focused development of eastern states.
  1. Capacity addition through easing the setup of greenfield steel plants.
  2. Development of steel clusters near integrated steel plants as well as demand centres.
  3. Transformation of logistics and utilities infrastructure in the eastern region.

Significance of the Steel Hub:

- Government estimates suggest capacity addition in the steel hub would entail capital investments of over $70 billion.
- It will lead to an incremental Gross State Domestic Product of over $35 billion through steel alone.
- It will create over 5 million jobs across the steel value chain in the region.
- The steel hub which will serve as a catalyst in the transformation of the eastern region following the Rs 100 lakh crore infrastructure investment (through National Infrastructure Pipeline) announced by the government in the next 5 years.

The Eastern States:

- The eastern states are rich in natural resources and collectively hold nearly 80% of the country's iron ore, most of domestic coking coal reserves and significant portion of chromite, bauxite and dolomite reserves.

- The eastern belt has the potential to add more than 75% of the country's incremental steel capacity envisioned by the National Steel Policy.
- Out of the 300 MT steel capacity by 2030-31, the region alone is capable of contributing over 200 MT.

7. EKAM Fest

Why in News?

- Union Ministry of Social Justice & Empowerment has inaugurated the Exhibition-cum-Fair "EKAM Fest" organised by National Handicapped Finance Development Corporation (NHFDC).

EKAM Fest:

- It is an effort for promoting entrepreneurship and knowledge among Divyangjan community, generating awareness among society about potentialities of PwDs; providing a major marketing opportunity to PwDs entrepreneurs. NHFDC Foundation is making efforts for the development of a brand and platform for marketing of products of these determined entrepreneurs. Accordingly, name of the brand has arrived at Ekam (Entrepreneurship, Knowledge, Awareness, Marketing).

NHFDC:

- NHFDC is an Apex corporation under the aegis of Department of Empowerment of Persons with Disabilities (Divyangjan), Ministry of Social Justice & Empowerment and is working since 1997.
- It is registered as a company not for profit and provides financial assistance to the Divyangjan/Persons with Disabilities (Divyangjan/PwDs) for their economic rehabilitation and provides number of skill development programmes to empower them to grow & sustain their enterprises.

8. Apex body on River linking

Why in News?

- The Central government is working on the establishment of an exclusive body to implement projects for Linking Rivers.

Highlights:

- To be called the National Interlinking of Rivers Authority (NIRA), the proposed body is expected to take up both inter-State and intra-State projects. It will also make arrangements for generating up funds, internally and externally.

- The subject of establishment of the Authority was discussed at the last meeting of the Special Committee on Inter-Linking of Rivers (ILR) in New Delhi.

- The panel includes Irrigation or Water Resources Ministers and Secretaries of States. Since its formation, the Committee has held 17 meetings.

- Once approved, the projects will be pursued as national projects, wherein the Centre will absorb 90% of the cost and the States concerned the rest.

- As of now, six ILR projects — the Ken-Betwa, Damanganga- Pinjal, Par-Tapi-Narmada, Manas-Sankosh-Teesta-Ganga, Mahanadi-Godavari and Godavari-Cauvery (Grand Anicut), have been under examination of the authorities.

- With regard to the peninsular rivers, the Centre has chosen to focus on the Godavari-Cauvery link than the earlier proposal to link the Mahanadi-Godavari-Krishna-Pennar-Cauvery rivers.

National River Linking Project (NRLP):

- The NRLP formally known as the National Perspective Plan, envisages the transfer of water from water 'surplus' basins where there is flooding to water 'deficit' basins where there is drought/scarcity, through inter-basin water transfer projects.

- It is designed to ease water shortages in western and southern India while mitigating the impacts of recurrent floods in the eastern parts of the Ganga basin.

- Interlinking of rivers was conceived more than 125 years ago by Sir Arthur Cotton, mainly to facilitate trade but it was not implemented then.

- The proposed NRLP, now comprises 29 canals totalling 9,600 km, will involve the movement of 245 trillion litres of water. If and when implemented, it will be one of the biggest inter-basin water transfer projects in the world.

9. Cabinet Approves Companies (Second Amendment) Bill, 2019

Why in News?

- The Union Cabinet, chaired by the Prime Minister, Shri Narendra Modi has approved the Companies (Second Amendment) Bill, 2019 to amend the Companies Act, 2013.

Provisions of the Bill:

- The Bill would remove criminality under the Act in case of defaults which can be determined objectively and which, otherwise, lack the element of fraud or do not involve larger public interest.

- This would also lead to further de-clogging of the criminal justice system in the country.

- The Bill would also further ease of living for law abiding corporates.

- Earlier, the Companies (Amendment) Act, 2015 amended certain provisions of the Act to remove difficulties faced in implementation of various provisions of the Act.

- **The major provisions of The Companies (Second Amendment) Ordinance, 2019:**

Re-categorisation of Certain Offences:

- The Ordinance re-categorizes 16 of these offences as civil defaults, where adjudicating officers may now levy penalties instead.

- These offences include: (i) issuance of shares at a discount, and, (ii) failure to file annual return.

Issue of Shares at a Discount:

- It prohibits a company from issuing shares at a discount, except in certain cases.

- The company is liable to pay a fine between one lakh rupees and five lakh rupees every officer in default may be punished with imprisonment up to six months or fine between one lakh rupees and five lakh rupees on failure.

- Ordinance changes this to remove imprisonment for officers as a punishment.

Commencement of Business:

- A company may not commence business, unless

- It files a declaration within 180 days of incorporation, confirming that every subscriber to the Memorandum of the company has paid the value of shares agreed to be taken by him.

- It files a verification of its registered office address with the Registrar of Companies within 30 days of incorporation.

Registration of Charges:

- The Ordinance changes this to permit registration of charges:
- within 300 days if the charge is created before the Ordinance, if not then it must be completed within six months from the date of the Ordinance, if not then the Registrar may grant another 60 days for registration.

Change in Approving Authority:

- Change in period of financial year for a company associated with a foreign company, has to be approved by the have been transferred to central government.
- Similarly, any alteration in the incorporation document of a public company which has the effect of converting it to a private company, has to be approved by Central Government.

Declaration of Beneficial Ownership:

- If a person holds beneficial interest of at least 25% shares in a company or exercises significant influence or control over the company, he is required to make a declaration of his interest.
- Failure to declare this interest, a person may either be fined, or imprisoned for up to one year, or both under the Ordinance.

Compounding:

- Under the Act, a regional director can compound (settle) offences with a penalty of up to five lakh rupees.
- The Ordinance increases this ceiling to Rs 25 lakh.

10. Period poverty

Why in News?

- Scotland has become the first country to end "period poverty" by providing free sanitary products to women of all ages in the country.

Highlights:

- Free menstrual products are already available to students in high schools, colleges and universities in Scotland.

- A bill has been passed by the Scottish Parliament recently which will make pads and tampons free across the board to women of all ages.
- The legislation would make tampons and sanitary pads available at designated public places such as community centres, youth clubs and pharmacies, at an estimated annual cost of 24.1 million pounds ($31.2 million).
- European Union has pledged to remove all taxes on menstruation products by 2022.

What is Period Poverty?

- Period poverty means being unable to access sanitary products and having a poor knowledge of menstruation often due to financial constraints.
- Period poverty is an issue that affects women and girls across the globe, with more than a quarter having missed work or school because they couldn't afford or didn't have access to menstrual products.

11. Cabinet approves FDI policy on Civil Aviation

Why in News?

- The Union Cabinet has given approval to permit foreign direct investment by those NRIs, who are Indian Nationals in Air India up to 100% under automatic route.

Highlights:

- The Union Cabinet has approved to amend the extant FDI Policy to permit Foreign Investment (s) in Air India by NRIs, who are Indian Nationals, up to 100% under automatic route.
- As per the present FDI Policy, 100% FDI is permitted in scheduled Air Transport Service/Domestic Scheduled Passenger Airline (Automatic up to 49% and Government route beyond 49%).
- However, for NRIs 100% FDI is permitted under automatic route in Scheduled Air Transport Service/Domestic Scheduled Passenger Airline
- Further, FDI is subject to the condition that Substantial Ownership & Effective Control (SOEC) shall be vested in Indian Nationals as per aircraft rules, 1937.
- However, for Air India Ltd., as per the present policy, foreign investment(s) in Air India Including that of foreign Airline(s) shall not exceed 49%, either directly or indirectly, subject to the condition that substantial ownership and effective control of Air India shall continue to be vested in Indian Nationals.

- Therefore, although 100% FDI is permitted under automatic route for NRIs in Scheduled Air Transport Service/Domestic Scheduled Passenger Airline, it is restricted to be only 49% in case of Air India.

Benefits:

- In light of the proposed strategic disinvestment of 100% of Air India Ltd. by the Government of India, Air India Ltd. will have no residual Government ownership and will be completely privately owned.

- It has been decided that foreign investment in Air India Ltd be brought on a level playing field with other scheduled airline operators.

- The amendment in FDI policy will permit foreign investment in Air India Ltd at par with other Scheduled Airline Operators i.e. upto 100% in Air India Ltd by those NRIs, who are Indian Nationals.

- The proposed changes in FDI Policy will enable foreign investment by NRIs into Air India Ltd. upto 100%, under automatic route.

Rationale of the Move:

- Above amendment to the FDI Policy are meant to liberalise and simplify the FDI policy to provide ease of doing business in the country.

- It is expected to lead to largest FDI inflows and thereby contributing to growth of investment, income and employment.

12. Solar Charkha Mission

Why in News?

- Subsidy to artisans under Solar Charkha Mission.

Solar Charkha Mission:

- The mission was launched by the Ministry of MSME.

- The scheme is envisaged to generate direct employment for nearly one lakh persons.

- It envisages setting up of 'Solar Charkha Clusters' which will have 200 to 2042 beneficiaries (spinners, weavers, tailors and other skilled artisans). Each spinner will be given two charkhas of 10 spindles each.

Advantages of Foreign Direct Investment (FDI)

Infrastructure accelerator effects – a rise in investment/GDP	Higher capital intensity / capital deepening i.e. more capital per worker
Better training for local workers – improved human capital	Grows a country's export capacity (e.g. special economic zones)
Technology & know-how transfer / diversification of the economy	More competition in markets which then lowers consumer prices
Creates new jobs – higher incomes and household savings	Lift in the level of labour productivity which increases GNI per capita

- As part of the scheme no subsidy is given, however, subsidy to the tune of Rs.9.60 crore is provided for the procurement of charkha and looms to the Implementing or Promoting Agency for a full-scale Solar Charkha Cluster involving a total investment of about Rs.38.625 crore.

- The pilot solar charkha cluster was set up at Khanwa village, Nawada District, Bihar in 2016. It was a success and benefited 1180 artists. Based on this success, the government set out to establish 50 such clusters under this Mission.

- These solar charkhas are to be operated using solar power which is a renewable energy source. It will help in the development of a green economy as it is an environment-friendly programme. It will also generate sustainable employment for the artisans.

- The Mission is implemented by the Khadi and Village Industries Commission (KVIC).

Objectives:

- To ensure inclusive growth by generation of employment, especially for women and youth, and sustainable development through solar charkha clusters in rural areas.

- To boost rural economy and help in arresting migration from rural to urban areas.

- To leverage low-cost, innovative technologies and processes for sustenance.

13. North East Venture Fund

Why in News?

- Union Minister Jitendra Singh have recently informed Rajya Sabha that the North East Venture Fund (NEVF) has disbursed over Rs.18 crores to 12 start-ups till date.

North East Venture Fund (NEVF):

- The North East Venture Fund was formally launched on 9th September, 2017 with joint efforts from Ministry of Development of North Eastern Region (DoNER) and North Eastern Development Finance Corporation Ltd (NEDFi).

Objective:

- To encourage entrepreneurs and Start-ups and to empower entrepreneurs from the North Eastern Region (NER)

Capital:

- It is a close ended fund with capital commitment of Rs 100 crore.

- The investment is ranging between Rs. 25 lakhs and Rs. 10 crores per venture, which is long term in nature with investment horizon of 4-5 years.

Contribution:

- The NEVF team has vigorously been participating in various events, seminars, conclaves etc. across NER, and interacted with start-ups both on one to one and group basis to promote the fund.

- The team members have also interacted with various venture funds, incubators in the venture capital eco- system. Over the last three years, out of 212 enquiries/applications received across sectors like Agri-Allied, Healthcare, Biotechnology, Education, Food Processing, Tourism, Logistics, Parking, Aggregation of Services, Entertainment etc., 40 proposals have been taken to the Investment Committee for perusal and 22 proposals have received investment commitment.

- The NEVF has till date made a disbursement of Rs.18.16 crore to 12 start-ups.

14. Ayurvedic Classification of Diseases

Why in News?

- The Ministry of AYUSH has developed National Ayurveda Morbidity Codes (NAMC), a comprehensive classification of diseases described in Ayurveda as well as Standardized Ayurveda Terminologies.

NAMASTE Portal:

- These have been made available on National AYUSH Morbidity and Standardized Terminologies Electronic Portal (NAMASTE Portal) developed by the Ministry which is available to the public.

CENTRALIZED COLLECTION OF MORBIDITY STATISTICS

UNANI · SIDDHA · YOGA & NATUROPATHY · SOWA RIGPA · NATIONAL AYUSH MORBIDITY AND STANDARDIZED TERMINOLOGIES ELECTRONIC PORTAL (NAMASTE PORTAL) · AYURVEDA · HOMOEOPATHY · AYUSH National Institutes · AYUSH Research Councils · AYUSH Services Under CHS, CGHS, ESI Etc. · NHM & Central Sponsored Programmes · State Govt. AYUSH Teaching Hospitals & other Clinical Units · Private Teaching Hospitals, NGOs & Others

- The portal was launched by Prime Minister Narendra Modi on the occasion of 2nd Ayurveda Day (17th October 2017).
- The portal was developed and is being maintained by the Central Council for Research in Ayurvedic Sciences (CCRAS), the apex body for research in Ayurvedic Sciences, Ministry of AYUSH, Government of India.
- This portal has the potential to revolutionize morbidity statistics data collection and may have a huge impact on the future policy-making decision by bringing to light the contributions of various AYUSH systems in the health care delivery system of the country.
- The key features of the portal include the Morbidity Codes and Standardized Terminologies of all the AYUSH systems for unambiguous reporting, electronic data submission through individual institution login ids, and also an integrated electronic health records (EHR) system for detailed data collection for individual institutions.

Standardization and Quality Assurance:

- For standardization of Ayurvedic diagnostic and treatment protocol, the Central Council of Research in Ayurvedic Sciences (CCRAS) under Ministry of AYUSH has undertaken a project on Reliability testing and Validation of Ayurveda diagnostic methods in June 2018.
- Under this project, some common disease conditions have been identified and accordingly the pro forma and manual of selected disease conditions is being drafted and validated through scientific methods in a phased manner.
- In the first phase, the disease conditions which have been identified are Kushtha (skin diseases), Kasa, Shwasa and Jwara.
- The first draft of Kushtha (skin diseases) manual as clinical Series-I has been published and for other three disease conditions inter-rator reliability has already been completed and second phase validity is under consideration in collaboration with the academic institutes of national repute.
- Further, the development of pro forma of various other disease conditions has been initiated. Various clinical studies are also being conducted following the integrated protocol in a scientific manner.

15. KIRAN-Women Scientist Scheme

Why in News?

- The Department of Science and Technology (DST), Ministry of Science and Technology, GOI has started several pioneering initiatives for promoting women in science.

Highlights:

- In 2014, DST restructured all women-specific programmes under one umbrella called Knowledge Involvement in Research Advancement through Nurturing (KIRAN), which encompasses women-exclusive schemes and encourages them to foster their career by not only undertaking research in Science and Technology (S&T) but also focusing on S&T solutions of issues & challenges at the grassroots level for social benefits.

- The mandate of the KIRAN Program is to bring gender parity in S&T through gender mainstreaming. Women Scientist Scheme (WOS) addresses the challenges faced by S&T qualified women primarily due to social responsibilities. Its two components WOS-A and WOS-B are directly implemented by the KIRAN Division and the third component WOS-C or KIRAN-IPR is implemented by TIFAC with grant-in-aid from DST.

- TIFAC is an autonomous think tank under the DST. It was established in 1988.

- It was mandated to assess the state-of-art of technology and set directions for future technological development in India in important socio-economic sectors.

- The WOS was launched to address the critical issues of "career-break", identify neglected well-qualified women in the field of S&T and to provide opportunities to women scientists.

- To encourage women to continue the research in S&T, the Ministry provides fellowships through the following categories:
  1. Women Scientist Scheme-A (WOS-A) – Research in Basic/Applied Science
  2. Women Scientist Scheme-B (WOS-B) – S&T interventions for Societal Benefit
  3. Women Scientist Scheme-C (WOS-C) – Internship in Intellectual Property Rights (IPRs) for the Self-Employment.

16. Cataloguing the Genetic Variation in Indians' project

Why in News?

- Genome India: 'Cataloguing the Genetic Variation in Indians' project has been sanctioned by Department of Biotechnology (DBT) on January 16, 2020 for a period of 3 years to 20 institutions from varied disciplines across the country.

Highlights:

- The whole genome sequencing under Genome India has just started.

- The proposed target of Whole Genome Sequencing (WGS) is to do it for total 10,000 individuals representing the country's diverse population in 3 years.

Rationale:

- The information generated from whole genome sequencing can facilitate future human genetics research in the country with greater precision, and to design a genome wide association array for the Indian population to develop precision healthcare and diagnostics for major diseases at affordable costs.
- The data security and sharing measures for this project will be governed by the rules and regulations formulated by Government of India.

De-identification:

- The personal information of all individuals consenting to participate in the study is stripped off from any further records in this project.
- This process of de-identification ensures that the personal information of the participants is not compromised.
- Additionally, ethical measures are strictly adhered to in order to maintain data security and protection.

What was Human Genome Project(HGP)

- The Human Genome Project was an international research effort to determine the **sequence of the human genome** and identify the **genes that it contains.**

- The US Human Genome Project is a 13 year effort, which is coordinated by the
  — **Department of Energy (DOE) and**
  — **National Institutes of Health (NIH).**

From Genes to Proteins
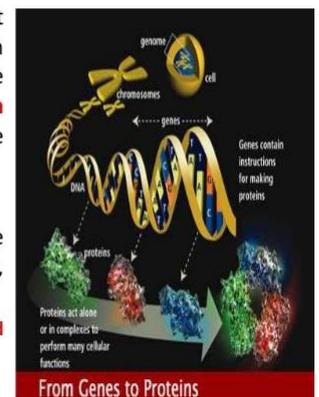
Genome:

- A genome, is all the genetic matter in an organism.
- It is defined as an organism's complete set of DNA, including all of its genes.
- Each genome contains all of the information needed to build and maintain that organism.
- In humans, a copy of the entire genome — more than 3 billion DNA base pairs — is contained in all cells that have a nucleus.

Human Genome Project (HGP):

- HGP was an international programme that led to the decoding of the entire human genome.
- It was a discovery looking to sequence and map all of the genes — together known as the genome — of members of our species.

- Beginning on October 1, 1990 and completed in April 2003, the HGP gave the ability, for the first time, to read nature's complete genetic blueprint for building a human being.

Genome India Project:

- The project is being headed by the Indian Institute of Science, Bengaluru as the nodal point of about 20 institutions including a few IITs, each doing its bit in collecting samples, doing the computations, and then the research.
- Aim: To ultimately build a grid of the Indian reference genome, to understand fully the type and nature of diseases and traits that comprise the diverse Indian population.
- The mega project hopes to form a grid after collecting 10,000 samples in the first phase from across India, to arrive at a representative Indian genome.
- The Indian project will aim to vastly add to the available information on the human species and advance the cause, because of the scale of the Indian population and the vertical and horizontal diversity here.

Medical Ethics:

- In a project that aims only to create a database of genetic information, gene modification is not among the stated objectives.
- The risks involved are misuse or unqualified access to the technology.

Data & Storage:

- After collection of the sample, anonymity of the data and questions of its possible use and misuse would need to be addressed.
- Keeping the data on a cloud is fraught with problems and would raise questions of ownership of the data.
- India is yet to pass a Data Privacy Bill with adequate safeguards.
- Launching a Genome India Project before the privacy question is settled could give rise to another set of problems.
- The question of heredity and racial purity has obsessed civilisations, and more scientific studies of genes and classifying them could reinforce stereotypes and allow for politics and history to acquire a racial twist.

Social Issues:

- In India a lot of politics is now on the lines of who are "indigenous" people and who are not. A Genome India Project could add a genetic dimension to the cauldron.

- It may also add to the existing problem of Selective Breeding.

17. COVID-19 Updates

Why in News?

- Steps taken for curbing the spread of COVID-19 in India.

Highlights:

- An Advisory is issued for all incoming international passengers retuning to India to self-monitor their health and follow the recommended "DOs and DON'Ts", since more than 100 countries across the world now have reported cases of COVID-19 and travellers to these countries, or any person having travelled abroad, might possibly have come in contact with people affected with COVID-19 during their stay there or even while in transit at airports.
- The Advisory also calls for passengers with travel history to China, Hong Kong, Republic of Korea, Japan, Italy, Thailand, Singapore, Iran, Malaysia, France, Spain and Germany to undergo self-imposed quarantine for a period of 14 days from the date of their arrival, and their employers to facilitate work-from-home for such employees during this period.
- With respect to restrictions on visa, besides the already issued instructions, all regular Visas (including e Visas) which have been granted to nationals of France, Germany and Spain on or before 11.03.2020 and where these foreigners have not yet entered India stands suspended. Regular visas (including e Visas) granted to all foreign nationals who have travel history to these countries on or after 1.2.2020 and who have not yet entered India also stands suspended.
- Indian citizens are strongly advised to refrain from travelling to France, Spain and Germany.
- A total of fifty confirmed cases of COVID-19 have been reported in India, till now.
- Of these 50 cases, 34 cases are Indian nationals and 16 are Italians.
- More than 1400 contacts have been put under surveillance for these positive cases, till date.
- Till now, positive cases have been reported from the states of Delhi, Haryana, Kerala, Telangana, Karnataka, Rajasthan, Maharashtra, Punjab, Tamil Nadu and Uttar Pradesh as well as the UTs of Ladakh and Jammu & Kashmir.

Evacuation by India of its Citizens and other Nationals from COVID-19 Affected Countries:

- The Government of India undertook evacuation operations from several countries in the wake of the COVID-19 outbreak.

- There were hundreds of Indians stranded in Wuhan, which was the epicentre of the outbreak.

- India engaged with China to safely evacuate its citizens and citizens of other friendly nations on a priority basis.

- Air India operated two special flights for the evacuation efforts which brought back 654 passengers that included 647 Indian citizens.

- The Indian Air Force also evacuated 112 passengers from Hubei province in China. Among these, 76 were Indian citizens.

- The other nationals evacuated included citizens of Myanmar, Bangladesh, Maldives, China, USA, Madagascar and South Africa. The IAF flight had also carried medical supplies which were given as a goodwill gesture to China.

- All the evacuated people were placed in isolation facilities for 14 days. They were tested twice and were found negative for COVID-19, after which they were discharged.

- Air India also evacuated 124 people from the Japanese cruise ship 'Diamond Princess' that included 16 Indian nationals. They tested positive for the virus and are now undergoing treatment.

- As it became clear that Iran was also facing a COVID-19 outbreak, the Government started to undertake measures to ensure the safety and security of its citizens in the country. Indian nationals in Iran include pilgrims, students and fishermen.

- On 7th March, 108 samples were received from Iran. These samples are being tested at the laboratory of AIIMS. Also, six scientists from the Indian Council of Medical Research (ICMR) have been stationed in Iran.

- Equipment and reagents have also been dispatched to enable them to setup a lab. India is expected to undertake operations to evacuate its citizens soon.

- So far, the Government of India has evacuated 890 passengers from COVID-19 affected countries.

- Out of these, 842 were Indian citizens and 48 belonged to different nationalities including Maldives, Myanmar, Bangladesh, China, US, Madagascar, Sri Lanka, Nepal, South Africa and Peru.

18. Commercial Cord Blood Banking

Why in News?

- Poona Citizen Doctor Forum (PCDF), a body that aims to rebuild trust among citizens and doctors, and promote ethical rational medical practice, has come forward to bust the aggressively promoted concept of Cord Blood Banking

Highlights:

- The leading gynaecologist and activist Dr. Arun Gadre has warned to-be parents against falling prey to the emotional marketing tactics by stem cell banking companies.
- Over the past decade, stem cell banking has been aggressively marketed even as its use is still in experimental stages.
- But these companies charge enormous fees from parents to preserve cells, adding it is merely by emotional marketing that companies convince parents to bank the cells for several years promising future therapeutic use.
- Cord blood banking involves taking the umbilical cord blood, which is a rich source of stem cells, and preserving it for future use.
- Private companies who have forayed into this field offer packages anywhere between ₹50,000 and ₹1 lakhs to store and preserve the cells in right conditions.

Views by ICMR:

- However, the Indian Council of Medical Research (ICMR) does not recommend commercial stem cell banking.
- It says so far there is no scientific basis for preservation of cord blood for future self-use and this practice therefore raises ethical and social concerns.
- Private storage of the cord blood is advisable when there is an elder child in the family with a condition treatable with these cells and the mother is expecting the next baby.
- In other situations, parents should be educated about the limitations of banking at this point of time.

Concerns:

- Despite such guidelines, a nexus of doctors and stem cell banking companies thrives and these companies get access to data of to-be parents.
- Activists say stem cell banking companies start approaching their prospective customers much before the delivery and offer competitive packages.

Cord Blood Banking:

- Globally, cord blood banking is recommended as a source of hematopoietic stem cell (derived from bone marrow, peripheral blood, or umbilical cord blood) transplantation for hematological cancers and disorders where its use is recommended.
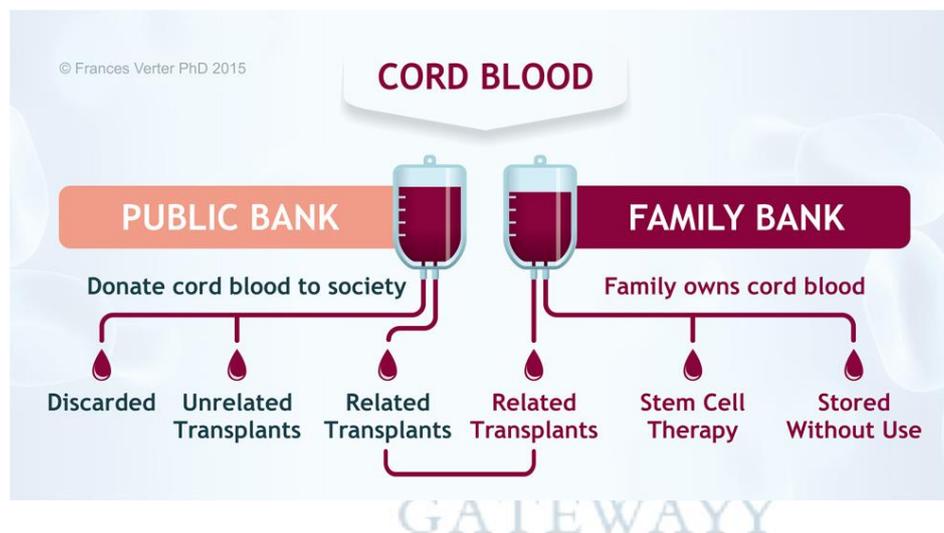
- For all other conditions, the use of cord blood as a source of stem cells is not yet established.

Cord Blood:

- Cord blood is the blood from the baby that is left in the umbilical cord and placenta after birth.
- It contains special cells called hematopoietic stem cells that can be used to treat some types of diseases.

Hematopoietic Stem Cells:

- Most cells can make copies only of themselves. For example, a skin cell only can make another skin cell.
- Hematopoietic stem cells, however, can mature into different types of blood cells in the body.

- Hematopoietic stem cells also are found in blood and bone marrow in adults and children.
- Hematopoietic stem cells can be used to treat more than 70 types of diseases, including diseases of the immune system, genetic disorders, neurologic disorders, and some forms of cancer, including leukemia and lymphoma.
- For some of these diseases, stem cells are the primary treatment. For others, treatment with stem cells may be used when other treatments have not worked or in experimental research programs.

Stem Cells:

- Stem cells are cells that can differentiate into other types of cells, and can also divide in self-renewal to produce more of the same type of stem cells.

Indian Council of Medical Research:

- The ICMR is the apex body in India for the formulation, coordination and promotion of biomedical research, and is one of the oldest and largest medical research bodies in the world. The ICMR is funded by the Government of India through the Department of Health Research, Ministry of Health and Family Welfare.

19. New Textile Policy – 2020

Why in News?

- The Government is formulating a New Textile Policy for the overall development of the sector.

Highlights:

- Over a period of time, the textile industry is facing some problems like technological obsolesce, high input cost (power & capital), poor access to credit, fragmented units, absence of fibre neutrality, etc. In order to address these issues/problems, GOI has implemented various schemes to provide support to Textiles & Apparel Sector.
- Knitting and Knitwear Sector scheme: Government has launched a separate scheme for the development of the Knitting and Knitwear Sector to boost production in the knitting and knitwear cluster at Ludhiana, Kolkata and Tirupur. Amended Technology Up-gradation Fund Scheme (ATUFS): For technology upgradation of the sector.
- National Handloom Development Programme, Comprehensive Handloom Cluster Development Scheme, Handloom Weaver Comprehensive Welfare Scheme and Yarn Supply Schemes.

- National Handicrafts Development Programme (NHDP) and Comprehensive Handicraft Cluster Development Schemes.
- **Power Tex India:** A comprehensive scheme for the power loom sector.
- Silk Samagra – An integrated scheme for the development of silk.
- Jute ICARE for increasing the income of farmers through different interventions.
- North East Region Textile Promotion Scheme (NERTPS) for promoting textiles industry.
- Scheme for Integrated Textile Park (SITP): The Government is implementing the SITP which provides support for the creation of world-class infrastructure facilities for setting up of textile units.

20. National Crime Records Bureau (NCRB)

Why in News?

- National Crime Records Bureau (NCRB) celebrated its 35th Inception Day, on March 12, 2020.

Highlights:

- A Crime Multi Agency Centre (Cri-MAC) for sharing of information on heinous crime and other issues related to inter-state coordination was launched on the occasion.

- A National Cybercrime Training Centre (NCTC) for professional quality e-Learning services on cyber-crime investigation on large scale to police officers, judges, prosecutors and other stakeholders was also launched.
- National Fingerprint Identification System (NAFIS) being setup by NCRB is expected to be ab game changer for police.
- The importance of capacity building in cyber-crime investigation and the Government's resolve in tackling the menace of increasing cyber-crime was emphasized.
- The Crime and Criminal Tracking Network and Systems (CCTNS) Hackathon & Cyber Challenge 2020 organised by NCRB in collaboration with Cyber Peace Foundation, which received overwhelming response from police, industry and academia was lauded.

Crime and Criminal Tracking Network and Systems (CCTNS):

- Crime and Criminal Tracking Network and Systems (CCTNS) is a Mission Mode Project (MMP) under the National e-Governance Plan of Govt. of India.
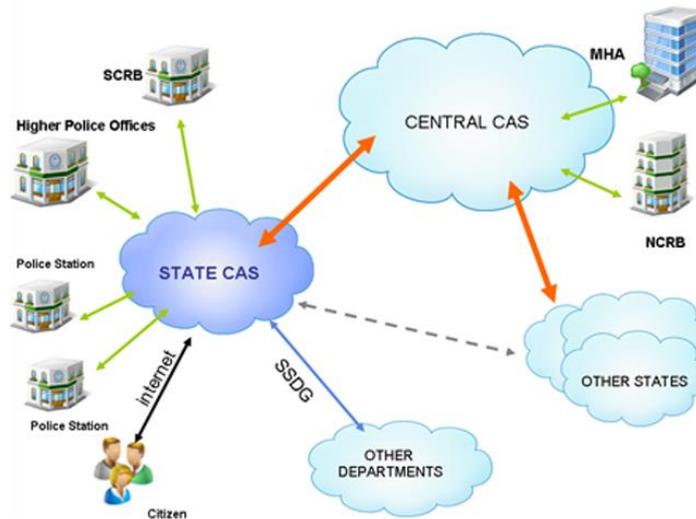
- CCTNS is a project initiated in June 2009 which aims at creating an integrated system for enhancing the efficiency of policing at the Police Station level.
- The huge database of CCTNS will help investigators in solving crime cases faster.

Objective:

- Make the Police functioning citizen friendly by automating the functioning of Police Stations.
- Improve delivery of citizen-centric services through effective usage of ICT.
- Provide the Investigating Officers of the Civil Police with tools, technology and information to facilitate investigation of crime and detection of criminals.
- Improve Police functioning in various other areas such as Law and Order, Traffic Management etc.
- Facilitate interaction and sharing of information among Police Stations, Districts, State/UT headquarters and other Police Agencies.
- Keep track of the progress of Cases, including in Courts.
- Establishing a basic platform for an Inter-Operable Criminal Justice System (ICJS).

National Crime Records Bureau:

- The National Crime Records Bureau is an Indian government agency responsible for collecting and analyzing crime data as defined by the Indian Penal Code (IPC) and Special and Local Laws (SLL).
- NCRB is headquartered in New Delhi and is part of the Ministry of Home Affairs (MHA), Government of India.

- NCRB was set-up in 1986 to function as a repository of information on crime and criminals so as to assist the investigators in linking crime to the perpetrators.

Mission:

- To empower Indian Police with Information Technology and criminal Intelligence to enable them to uphold law and protect people.
- To provide leadership and excellence in crime analysis particularly for serious and organized crime.

Objectives:

- Create and maintain secure sharable National Databases on crimes and criminals for law enforcement agencies and promote their use for public service delivery.
- Collect and process crime statistics at the national level and clearing house of information on crime and criminals both at National and International levels.
- Lead and coordinate development of IT applications and create an enabling IT environment for Police organizations.
- National repository of fingerprints of all criminals.
- To evaluate, modernize and promote automation in State Crime Records Bureau and State Finger Print Bureau.
- Training and capacity building in Police Forces in Information Technology and Finger Print Science.

21. Bird flu - Avian Influenza

Why in News?

- The suspected cases of avian influenza (bird flu) are being reported from various parts of the Kerala.

Mitigatory Measures:

- Special squads had been formed to cull birds within a certain distance around the affected areas to bring the situation under control.
- About 4,000 chicken and birds are expected to be killed in two days as part of defensive measures being taken to prevent the spread of bird flu.

- The State was well-equipped with specialized laboratories to diagnose zoonotic diseases without delay and adopt preventive Measures.

Bird Flu or Avian Influenza:

- Avian influenza (AI), commonly called bird flu, is an infectious viral disease of birds.
- These viruses occur naturally among wild aquatic birds worldwide and can infect domestic poultry and other bird and animal species.
- People catch bird flu by close contact with birds or bird droppings or undercooked poultry.
- Outbreaks of AI in poultry may raise global public health concerns due to their effect on poultry populations, their potential to cause serious disease in people, and their pandemic potential.
- Reports of highly pathogenic AI epidemics in poultry, such as A (H5N1), can seriously impact local and global economies and international trade.

H5N1:

What Is H5N1?
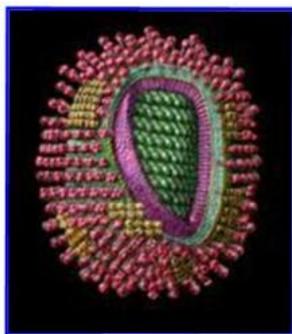
- Influenza A from the family of Orthomyxoviridae
- Negative single-strand RNA virus with segment genome
- Haemagglutiinin and Neuraminidase viral proteins
- 15 subtypes of haemagglutinin and 9 subtypes of neuraminidase
- All subtypes exist in wild aquatic birds

- Most avian influenza viruses do not infect humans. However, some, such as A (H5N1) and A (H7N9), have caused serious infections in people.
- H5N1 is a type of influenza virus that causes a highly infectious, severe respiratory disease in birds called avian influenza.
- Human cases of H5N1 avian influenza occur occasionally, but it is difficult to transmit the infection from person to person. When people do become infected, the mortality rate is about 60%.

How does H5N1 Influenza Spread to People?

- Almost all cases of H5N1 infection in people have been associated with close contact with infected live or dead birds, or H5N1-contaminated environments.

- The virus does not infect humans easily, and spread from person to person appears to be unusual.
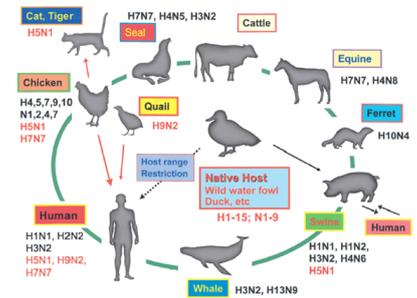
High Concerns:

- H5N1 infection in humans can cause severe disease and has a high mortality rate.

- If the H5N1 virus were to change and become easily transmissible from person to person while retaining its capacity to cause severe disease, the consequences for public health could be very serious.

22. Remission of Duties and Taxes on Exported Products (RoDTEP)

Why in News?

- The Cabinet Committee on Economic Affairs, chaired by Prime Minister, has given its approval for introducing the Scheme for Remission of Duties and Taxes on Exported Products (RoDTEP).

Highlights:

- Under the scheme, a mechanism would be created for reimbursement of taxes/ duties/ levies, at the central, state and local level, which are currently not being refunded under any other mechanism, but which are incurred in the process of manufacture and distribution of exported products.

- This scheme is going to give a boost to the domestic industry and Indian exports providing a level playing field for Indian producers in the International market so that domestic taxes/duties are not exported.

- Under the Scheme an inter-ministerial Committee will determine the rates and items for which the reimbursement of taxes and duties would be provided. In line with "Digital India", refund under the Scheme, in the form of transferable duty credit/electronic scrip will be issued to the exporters, which will be maintained in an electronic ledger. The Scheme will be implemented with end to end digitization.

- The refunds under the RoDTEP scheme would be a step towards "zero-rating" of exports, along with refunds such as Drawback and IGST.

- This would lead to the cost competitiveness of exported products in international markets and better employment opportunities in export-oriented manufacturing industries.

Features:

- At present, GST taxes and import/customs duties for inputs required to manufacture exported products are either exempted or refunded.

- However, certain taxes/duties/levies are outside GST, and are not refunded for exports, such as, VAT on fuel used in transportation, Mandi tax, Duty on electricity used during manufacturing etc. These would be covered for reimbursement under the RoDTEP Scheme.

- The rebate would be claimed as a percentage of the Freight On Board (FOB) value of exports.

23. Centre withdraws ex-gratia notification on COVID-19

Why in News?

- Hours after it issued a notification that an ex-gratia of ₹4 lakhs will be paid to the families of those who die of COVID-19 infection, the Ministry of Home Affairs (MHA) withdrew the order.

Highlights:

- In an order recently, the MHA said it has decided to treat COVID-19 as a "notified disaster" for the purpose of providing assistance under the State Disaster Response Fund (SDRF).

- Under the old notification, the MHA listed ex-gratia relief to families of deceased persons and cost of hospitalization for managing COVID-19 patients at rates fixed by the State government among the items for assistance from the SDRF pool.

- It issued another "partially modified" notification the same day where the above two items were removed.

Disaster Management Act, 2005

\# Institutional Mechanism -
- NDMA, SDMA, DDMA
- NEC, SEC
- NDRF

\# Financial Arrangements-
- National Disaster Response Fund, State Disaster Response Fund and District Disaster Response Fund
- National Disaster Mitigation Fund & similar such fund at state and district levels
- Capacity Building Grant
- Response Reserve (to be created)

\# Capacity Development-
- NIDM

Other institutions:
- Civil Defence
- Fire Services
- Home Guards

- It said the items that would be included for assistance under the SDRF are measures for quarantine, sample collection, screening and procurement of essential equipment/laboratories in response to COVID-19.
- Relief to families of victims and cost of hospitalization removed in new order.
- No explanation was given by the MHA officials for the modified notification.

State Disaster Response Fund:

- The SDRF is constituted under the Disaster Management Act, 2005 and is the primary fund available with state governments for responses to notified disasters.
- The Central government contributes 75 % towards the SDRF allocation for general category states and UTs, and over 90 % for special category states/UTs, which includes northeastern states, Sikkim, Himachal Pradesh and Uttarakhand).
- For SDRF, the Centre releases funds in two equal installments as per the recommendation of the Finance Commission.
- On the other hand, the National Disaster Response Fund, which is also constituted under the Disaster Management Act, 2005 supplements the SDRF of a state, in case of a disaster of severe nature, provided adequate funds are not available in the SDRF.
- The disasters covered under the SDRF include cyclones, droughts, tsunamis, hailstorms, landslides, avalanches and pest attacks among others.

What is a Disaster?

- According to the Disaster Management Act, a disaster is a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.

- Ministry of Home Affairs has defined a disaster as an "extreme disruption of the functioning of a society that causes widespread human, material, or environmental losses that exceed the ability of the affected society to cope with its own resources."
- Further, the High Power Committee on Disaster Management, which was constituted in 1999, identified 31 disaster categories organised into five major sub-groups, which are: water and climate related disasters, geological related disasters, chemical, industrial and nuclear related disasters and biological related disasters, which includes biological disasters and epidemics.

24. 20-year window for Telcos to Clear Dues

Why in News?

- The Central government has urged the Supreme Court to give the telecom companies a 20-year window to pay the remaining amount of Adjusted Gross Revenue.

Highlights:

- In a long standing case related to the definition of Adjusted Gross Revenue (AGR) between Government and the Telecom companies, the 16 major telecom service providers were asked by the SC to pay a total due amounting 1,69,048.65 crores to the government.

- The payment received till March 6, 2020, from these companies was ₹25,901.56 crores and dues to the tune of ₹1,43,271.74 crore remain outstanding.

- All the licensees are allowed to pay the unpaid or remaining amount of past dues in annual instalments over 20 years (or less if they so opt), duly protecting the net present value of the said dues using a discount rate of 8% (based on one-year marginal cost of lending rate of SBI which is currently 7.75%).

- The "formula" has been devised to soften the blow of the October 24, 2019 judgment directing the companies pay the AGR in three months.
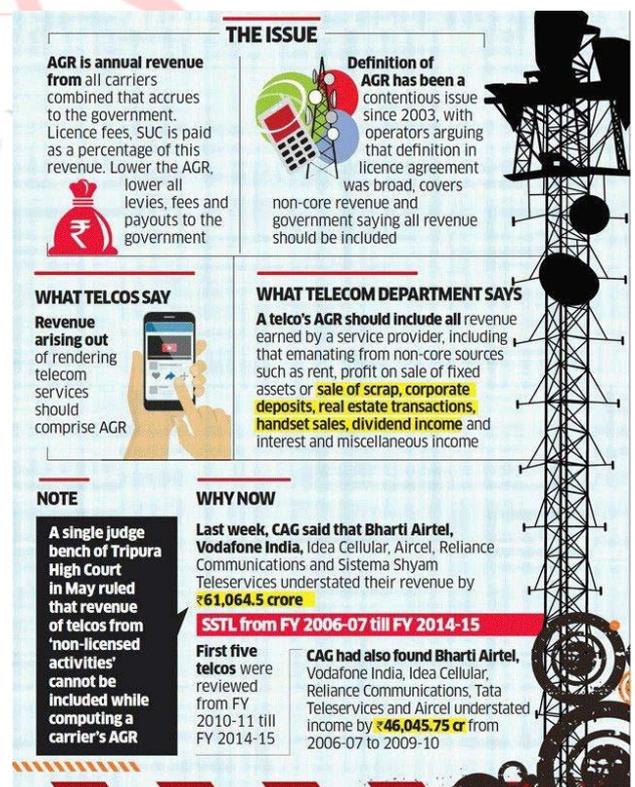
THE ISSUE

AGR is annual revenue from all carriers combined that accrues to the government. Licence fees, SUC is paid as a percentage of this revenue. Lower the AGR, lower all levies, fees and payouts to the government

Definition of AGR has been a contentious issue since 2003, with operators arguing that definition in licence agreement was broad, covers non-core revenue and government saying all revenue should be included

WHAT TELCOS SAY

Revenue arising out of rendering telecom services should comprise AGR

WHAT TELECOM DEPARTMENT SAYS

A telco's AGR should include all revenue earned by a service provider, including that emanating from non-core sources such as rent, profit on sale of fixed assets or sale of scrap, corporate deposits, real estate transactions, handset sales, dividend income and interest and miscellaneous income

NOTE

A single judge bench of Tripura High Court in May ruled that revenue of telcos from 'non-licensed activities' cannot be included while computing a carrier's AGR

WHY NOW

Last week, CAG said that Bharti Airtel, Vodafone India, Idea Cellular, Aircel, Reliance Communications and Sistema Shyam Teleservices understated their revenue by ₹61,064.5 crore

SSTL from FY 2006-07 till FY 2014-15

First five telcos were reviewed from FY 2010-11 till FY 2014-15

CAG had also found Bharti Airtel, Vodafone India, Idea Cellular, Reliance Communications, Tata Teleservices and Aircel understated income by ₹46,045.75 cr from 2006-07 to 2009-10

Rationale:

- The move takes into consideration the larger interest, economic consequences on the nation and with a view to ensure that the Supreme Court order is complied with in letter and spirit.
- The vital issues related to the financial health and viability of the telecom sector and need for maintaining competition and level playing field in the interest of consumers were considered.
- The closure of one or more Telecom Service providers would adversely impact the digital connectivity of the country driving e-governance projects in commerce, banking and health. It would also dent the spread of digitization in rural India.

25. Eklavya Model Schools

Why in News?

- The scheme of Eklavya Model Residential Schools (EMRSs) is a Government of India scheme for model residential school for Indian tribals (ST, Scheduled Tribes) across India and was introduced in the year 1997-98.

Objectives:

- To provide quality middle and high-level education to Scheduled Tribe (ST) students in remote areas in order to enable them to avail of reservation in high and professional educational courses and get jobs in government and public and private sectors.
- Comprehensive physical, mental and socially relevant development of all students enrolled in each and every EMRS.
- Focus differentially on the educational support to be made available to those in Standards XI and XII, and those in standards VI to X, so that their distinctive needs can be met.
- Support the construction of infrastructure that provides education, physical, environmental and cultural needs of student life.

Implementation:

- The scheme is being implemented by the Ministry of Tribal affairs.
  - ✓ **Provisions:**
  1. EMRSs are set up in States/UTs with grants under Article 275(1) of the Constitution of India.

2. As per budget announcement 2018-19, every block having 50% or more ST population and at least 20,000 ST persons is to have an EMRS by the year 2022.

- The government gives one time ₹30 lakh grant for establishing the school, thereafter up to ₹30 lakhs per school annually. Additional cost is borne by state governments.

- A total number of 438 EMRSs have so far been sanctioned by the Ministry, out of which 285 are functional.

- As per existing guidelines, the total number of EMRSs being set up upto the year 2022 is 740.

✓ **Structure:**

1. Admission to these schools will be through selection/competition with suitable provision for preference to children belonging to Primitive Tribal Groups, first generation students, etc.

2. Sufficient land would be given by the State Government for the school, play grounds, hostels, residential quarters, etc., free of cost.

3. The number of seats for boys and girls will be equal.

Sixth Schedule to the Constitution of India [Articles 244(2) and 275(1)]

- 20. **Tribal areas.**—(1) The areas specified in Parts I, II, IIA and III of the table below shall respectively be the tribal areas within the State of Assam, the State of Meghalaya, the State of Tripura and the State of Mizoram.
- (2) Any reference in Part I, Part II or Part III of the table below to any district shall be construed as a reference to the territories comprised within the autonomous district of that name existing immediately before the day appointed under clause (b) of section 2 of the North-Eastern Areas (Reorganisation) Act, 1971

3

- In these schools, education will be entirely free.

- Every class can have maximum 60 students preferably in 2 sections of 30 students each and the total sanctioned strength of the school will be 480 students.

- At the Higher Secondary level (class XI & XII), there will be three sections per class for the three streams in Science, Commerce & Humanities.

26. Rashtriya Kishore Swasthya Karyakram

Why in News?

- Promoting health and prevention of disease and risk factors is an important aspect of the Rashtriya Kishore Swasthya Karyakram under the National Health Mission.

Highlights:

- Various platforms being used to promote health and well-being of adolescents through Social and Behaviour Change Communication are as follows:
  1. Quarterly Adolescent Health Day
  2. Peer Educator Programme in the community and schools
- Besides this, Health promotion messages are also propagated through mass media and mid- media in the form of TV and radio spots, posters, leaflets and other interpersonal communication material.
- Social Media platforms are used for creating awareness on various schemes of the Ministry including those for the adolescents.
- Out of a total sanctioned strength of 2040 Adolescent Health Counsellors, there are 1671 Adolescent Health Counsellors in place across the country.

Initiatives:

- Public health being a State subject, all the administrative and personnel matters, including the recruitment of counsellors in public health facilities lie with the respective State Governments.
- The shortage of health human resource in public health facilities varies from State to State depending upon their policies and context.
- However, under National Health Mission (NHM), financial and technical supports are provided to the State/UTs to strengthen their healthcare systems including support for recruitment of health human resource based on the requirements posed by them in their Programme Implementation Plans (PIPs) within their overall resource envelope.

There were 147 Centrally Sponsored Schemes till 2013 budget for adolescents

What's new about RKSK?

1. RKSK will bring in several new dimensions such as mental health, nutrition, substance misuse, gender based violence and non-communicable diseases
2. Programme introduces community based interventions through peer educators, and is underpinned by collaborations with other Ministries

Components:

- Rashtriya Kishore Swasthya Karyakram has the following components:
- The Adolescent Friendly Health Clinics are established across various levels of public health institutions in all the States.
- Weekly Iron Folic Acid Supplementation (WIFS) Programme is being implemented for school going adolescent boys and girls and out of school adolescent girls across the country. The Peer Educator Programme is being implemented in select 200 districts, based on Composite Health Index and identified as High Priority Districts (HPDs).
- Under the Menstrual Hygiene Scheme, funds are provided to the States/UTs for procurement of sanitary napkins for Adolescent Girls (aged 10-19 years) as per proposals received from them in their Annual Programme Implementation Plans.
- Rashtriya Kishore Swasthya Karyakram (RKSK) focuses on reaching out all adolescents include Lesbian, Gay, Bisexual, Transgender and Queer (LGBTQ).

27. Aircraft (Amendment) Bill, 2020

Why in News?

- Aircraft (Amendment) Bill, 2020 aimed to improve India's aviation safety ratings and provide statutory status to regulatory institutions like the Directorate General of Civil Aviation (DGCA) got approve from the Lok Sabha recently.

Highlights:

- The Aircraft (Amendment) Bill, 2020 provides for statutory backing to the DGCA, Bureau of Civil Aviation Security (BCAS) and the Aircraft Accident Investigation Bureau (AAIB).
- There was a need to provide statutory backing to regulatory bodies as they were set up under executive order.
- The Bill also provides for keeping aircraft belonging to the country's armed forces outside the purview of the Aircraft Act, 1934.
- The Bill proposes to increase the fine for violations of rules from Rs 10 lakh to Rs 1 crore.
- The Bill would bring regulation regarding air navigation services under its purview.

Need:

- While the air fares are needed to remain affordable, it was also necessary that the airline business remains viable.

- The civil aviation sector has been deregulated and the government does not set air fare.
- The Airlines are losing considerable amount of money amid COVID-19 outbreak.
- Directorate General of Civil Aviation:
- The Directorate General of Civil Aviation (DGCA) is the regulatory body in the field of Civil Aviation, primarily dealing with safety issues.
- It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety, and airworthiness standards.
- The DGCA also co-ordinates all regulatory functions with the International Civil Aviation Organisation.
- DGCA has been given statutory status under the Aircraft (Amendment) Bill, 2020.

28. Uncertainity over NPR

Why in News?

- At least 13 States, and Delhi, covering almost 60% of the total population of India, are opposed to the revision of the National Population Register (NPR) in the format being prepared by the Centre, even as the nationwide exercise is scheduled to kick off in barely two weeks' time on April 1.

Highlights:

- Home minister has told that people could choose to not respond to questions, but Chief Ministers and activists have said that this is no guarantee that they would not face any problems in the future.
- The Ministry of Home Affairs (MHA) had informed the Lok Sabha that it was in discussion with States that had expressed concerns over the controversial additional questions in the NPR form. The MHA had informed a parliamentary panel that during works towards updating the NPR 2020, it is proposed to collect data on some additional items like place of last residence, mother tongue, Aadhaar number (voluntary), mobile number, passport (Indian passport holder), voter ID card, driving license number, date and place of birth of father and mother.
- Activists have pointed out that as the law stands, not providing information for the NPR can be an offence and the NPR could be used for identifying genuine citizens and doubtful ones.

- West Bengal was the first State to announce that it would not canvass the NPR form during the census operations, followed by Kerala. Both States have put the NPR exercise on on hold.

29. Ibuprofen and COVID-19

Why in News?

- The health minister of France, Olivier Véran, has issued a blunt warning about painkillers taken by people ill with the coronavirus, especially to stay away from drugs like ibuprofen and aspirin.

Highlights:

- The So-called nonsteroidal anti-inflammatory drugs like ibuprofen worsened symptoms of the illness caused by the coronavirus, according to the health minister.

- Some patients had experienced serious adverse effects while taking the drugs, known as NSAIDs, which should not be used in these patients.

- The advice left many medical experts scratching their heads. The coronavirus is a new pathogen, and little is known about the disease it causes, called COVID-19, or how patients respond to common medications.

- The Minister's warning followed a letter published in The Lancet. The letter's authors proposed that certain drugs increase the number of so-called ACE2 receptors on the surfaces of cells. The coronavirus uses these receptors to infect cells, the authors noted, and so in theory patients taking the drugs might be more vulnerable to the virus. One of the drugs was ibuprofen. But researchers say there is no such proof.

- There are reasons to worry about long-term, heavy use of NSAIDs, which have been linked an increased risk of kidney damage in some patients. People taking blood thinners also should avoid NSAIDs.

- But for infectious disease specialists, the greater concern is that when NSAIDs and acetaminophen reduce fever, patients may be more comfortable but their lower temperatures can short-circuit the body's main defense against infection.

- Studies have found that if people infected with a variety of viruses and other microorganisms bring their fevers down, with NSAIDs or with acetaminophen, their symptoms may last longer and they continue to shed virus for a longer time, meaning they may be contagious for longer periods.

Why in News?

- The Ministry of Social Justice and Empowerment has proposed to restructure and formulate a scheme for Comprehensive Rehabilitation of Beggars

Highlights:

- It will be a comprehensive scheme for persons engaged in the act of begging.
- The scheme will cover identification, rehabilitation, provision of medical facilities, counselling, education, skill development with the support of State Governments, Local Urban Bodies and Voluntary Organizations.
- The scheme will be implemented in the selected cities having large concentration of Beggar community during the financial year 2020-2021.
- The government is working in a mission mode with complete commitment to 'Har Ek Kaam, Desh Ke Naam'.

Implementation:

- Pilot project of this scheme will be initiated during Financial Year 2019-20 subject to submission of city specific Action Plan by the State Governments.
- 100% Assistance under the Scheme shall be provided to the States/UTs for its implementation.
- During the year 2019-20, this Ministry has released an amount of Rs. One Crore to National Institute of Social Defence (NISD) and Rs. 70.00 Lakh to National Backward Classes Finance & Development Corporation (NBCFDC) for skill development programmes for beggars.

Induction:

- The Corporation has so far conducted skill development training programme for 400 members of beggar's community in Warehouse Packer, Hand-rolled Agarbatti making, Hand Embroiderer and other self-employment skill development training programmes.
- **National Backward Classes Finance & Development Corporation:**
- NBCFDC was incorporated 13 January 1992 as a non-profit company under the Ministry of Social Justice and Empowerment, Government of India to improve and develop the economic activities for the members of Backward Classes who are living below double the poverty line.

- The Corporation can assist loan for their self-employment ventures in the sectors like agriculture, transport and service etc.
- NBCFDC also provides Micro Financing through SCAs/ Self Help Groups (SHGs).
- The Corporation can assist a wide range of income generating activities to assist the poorer section of these classes in skill development and self-employment ventures.

31. Revival of Khadi and Village Industries

Why in News?

- The Ministry of Micro, Small and Medium Enterprises (MSME), through Khadi and Village Industries Commission (KVIC), has been implementing Khadi Reform and Development Programme (KRDP) scheme for revival and increase the production of Khadi throughout the country.

Khadi Reform and Development Programme (KRDP):

- It is a comprehensive reform programme approved by Government of India, being implemented with the assistance from Asian Development Bank (ADB).
- KRDP aims to revitalize the Khadi and Village Industries through Policy and Institutional Reforms.
- **Specific objectives are:**
    1. Repositioning Khadi and aligning it to market demand and trends.
    2. Enhancing artisan welfare and empowerment.
    3. Undertaking extensive capacity building of Khadi Institutions (KIs).
    4. Strengthening institutional mechanisms.
    5. Implementation of MIS at Khadi Institution level and e-Governance at KVIC.
    6. Strategic development of traditional village industries.

Financial Assistance:

- A total of 22 Khadi Institutions were given assistance under KRDP with a financial outlay of Rs.1484.93 lakhs for refurbishment of Khadi programme in the State of Bihar.
- Ministry of MSME provides financial assistance in the form of grant and subsidy to KVIC for promotion and development of Khadi Programme.

Government Approved Proposal To Increase Wages Of Artisans By Over 36%

- The Union Ministry of Micro, Small and Medium Enterprises (MSME) approved a proposal by the **Khadi and Village Industries Commission (KVIC)** to increase the wages of artisans **by over 36%.**
- From Rs 5.50 per hank previously to Rs 7.50 per hank.
- Along with payment of government subsidy **Modified Market Development Assistance (MMDA),** will be implemented.
- **STATIC:** Giriraj Singh is the Minister of State (Independent Charge) of the Ministry of Micro, Small and Medium Enterprises.

- Ministry has approved Khadi Vikas Yojana for the development of Khadi programme during the year 2019-20, under which assistance is provided under following components:
- Modified Market Development Assistance (MMDA): KVIC provides Market Development Assistance to the registered Khadi Institutions and 40% of total MMDA to the Khadi artisans engaged in production activity.
- Interest Subsidy Eligibility Certificate (ISEC) Scheme: KVIC provides interest subsidy on the working capital loan availed by Khadi Institutions for undertaking production and sales activities under Khadi programme. Under the scheme interest @ 4% per annum is to be paid by the Khadi Institution and balance i.e. actual lending rate minus 4% is to be paid by the Government as interest subsidy. Workshed Scheme for Khadi Artisans: Khadi artisans are provided Worksheds for better work atmosphere and storing the materials, under which financial assistance up to Rs. 60000/- is provided per workshed.
- For revival of sick Khadi Institutions, assistance upto Rs. 9.90 lakh is provided to weak and problematic Khadi Institutions to bring them back to normalcy. For the renovation and modernization of sales outlets run by KVIC, Khadi Institutions and KVIBs financial assistance are being provided under 'Assistance for Marketing Infrastructure' scheme.

Rozgar Yukt Gaon (RYG):

- A new component under Khadi Vikas Yojana has been introduced with objective of introducing enterprise led model replacing subsidy-led model and create an additional 12,500 direct employment opportunities in 50 villages, which are deprived of opportunities and sustainable livelihood support systems, in addition to spinning out secondary and ancillary opportunities of employment in a wider sense.

- This will generate nearly 18,265 employment opportunities in which 12,500 will be direct and 5,765 will be indirect.

Khadi Mark:

- To ensure genuineness of Khadi, "Khadi Mark" regulation has been notified by Government of India.
- As of now, 2326 number of Khadi Institutions are working under Khadi Programme, out of which 85 KIs are working in Bihar State.

32. Digital e-Learning Platforms

Why in News?

- Union Human Resource Development Minister has asked students to continue their learning by making full use of the available digital e-Learning platforms during the period the educational institutions are closed as a precautionary measure against COVID-19.

Highlights:

- Educational institutions have been urged to promote digital learning and make students aware of the various digital/e-learning platforms which are provided by MHRD for online education.
- DIKSHA: Diksha has more than 80000 e-Books for class 12th created by CBSE, NCERT and States/UTs which are available in multiple languages.
- e- PATHSHALA: In this web portal NCERT has deployed 1886 audios, 2000 videos, 696 e-books (e-Pubs) and 504 Flip Books for classes 1st to 12th in different languages.
- **National Repository of Open Educational Resources (NROER):** It is an initiative to bring together all digital and digitizable resources across all stages of school education and teacher education.

- The e-platforms of Ministry of HRD for school education & Higher Education are as under:
- SWAYAM: SWAYAM is the national online education platform hosting 1900 courses covering both school (class IX to XII) and Higher Education (undergraduate, post graduate programs) in all subjects.
  1. A unique feature of SWAYAM is that it is integrated with conventional education.
  2. Credit transfers are possible for SWAYAM courses
- **SWAYAM PRABHA:** It has 32 D2H TV channels transmitting educational content on a 24/7 basis.
  - ✓ The channels cover both school education (class IX to XII) and Higher Education (undergraduate, post graduate, engineering, out of school children, vocational courses and teacher training) in arts, Science, commerce, performing arts, Social Sciences and Humanities subjects, engineering, technology, law, medicine, and agriculture.

33. Large-scale Electronics Manufacturing in India

Why in News?

- In a bid to boost large-scale electronics manufacturing in India, the Union Cabinet approved three schemes, including a production-linked incentive scheme, with a total outlay of almost ₹48,000 crore.
- The National Policy of Electronics 2019 (NPE 2019) replaces the National Policy of Electronics 2012 (NPE 2012).

Highlights:

- The schemes are expected to attract new investments worth at least ₹50,000 crore in the sector, while generating more than five lakh direct and 15 lakh indirect jobs.

PLI for Large Scale Electronics Manufacturing:

- The Production-linked incentive (PLI) scheme for Large Scale Electronics Manufacturing aims to attract large investments in mobile phone manufacturing and specified electronic components, including assembly, testing, marking and packaging (ATMP) units.
- It has at a budgetary outlay of Rs. 40,995 crore for five years.
- The scheme will offer an incentive of 4-6% on incremental sales of goods manufactured in India and is expected to create a total of 8 lakh jobs.

Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS):

- SPECS will provide financial incentive of 25% of capital expenditure for the manufacturing of goods that constitute the supply chain of an electronic product.
- The scheme will help offset the disability for domestic manufacturing of electronic components and semiconductors in order to strengthen the electronic manufacturing ecosystem in the country.
- The total cost of the scheme is Rs.3,285 crore.

Electronics Manufacturing Clusters (EMC) 2.0:

- It aims at creating quality infrastructure with a minimum area of 200 acres along with industry-specific facilities such as common facility centres, ready-built factory sheds/ plug-and-play facilities.
- The scheme will provide financial assistance upto 50% of the project cost subject to ceiling of Rs.70 crore per 100 acres of land and For Common Facility Centre (CFC), financial assistance of 75% of the project cost subject to a ceiling of Rs.75 crore will be provided.
- It has outlay of Rs. 3,762 crore over a period of 8 years.

Salient Features of National Policy on Electronics 2019 NPE 2019:

Proposal of National Policy on Electronics 2019

Positioning India as a global hub for ESDM
(Electronics System Design & Manufacturing)

- Creation of eco-system for ESDM to compete globally
- Incentives for manufacturing of core electronic components, Special package for mega projects
- Creation of Sovereign Patent Fund & promotion of trusted electronics value chain initiatives
- To achieve a turnover of ₹26,00,000 cr. by 2025 including production of 100 cr. mobile handsets

CABINET DECISIONS
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- Create eco-system for globally competitive Electronics System Design and Manufacturing (ESDM) sector

- Provide incentives and support for manufacturing of core electronic components.
- Provide special package of incentives for mega projects which are extremely high-tech and entail huge investments, such as semiconductor facilities display fabrication, etc.
- Formulate suitable schemes and incentive mechanisms to encourage new units and expansion of existing units.
- Promote Industry-led R&D and innovation in all sub-sectors of electronics, including grass root level innovations and early stage Start-ups in emerging technology.
- Provide incentives and support for significantly enhancing availability of skilled manpower, including re-skilling.
- Special thrust on Fabless Chip Design Industry, Medical Electronic Devices Industry, Automotive Electronics Industry and Power Electronics for Mobility and Strategic Electronics Industry.
- Create Sovereign Patent Fund (SPF) to promote the development and acquisition of IPs in ESDM sector.
- Promote trusted electronics value chain initiatives to improve national cyber security profile.

34. MPLADS funds may be utilized for COVID-19

Why in News?

- Ministry of Statistics and Programme Implementation issued a circular granting one-time dispensation for utilizing funds under the Members of Parliament Local Area Development Scheme to address the challenges in the fight against COVID-19.

Members of Parliament Local Area Development Scheme (MPLADS):

- The MPLADS is an on-going Central Sector Scheme which was launched in 1993-94.
- The Scheme enables the Members of Parliament to recommend works for creation of durable community assets based on locally felt needs to be taken up in their constituencies in the area of national priorities namely drinking water, education, public health, sanitation, roads etc.
- The Ministry of Statistics and Programme Implementation is responsible for the policy formulation, release of funds and prescribing monitoring mechanism for implementation of the Scheme.

Features:

- The annual MPLADS fund entitlement per MP constituency is Rs. 5 crore.
- MPs are to recommend every year, works costing at least 15 % of the MPLADS entitlement for the year for areas inhabited by Scheduled Caste population and 7.5 % for areas inhabited by S.T. population.
- In order to encourage trusts and societies for the betterment of tribal people, a ceiling of Rs. 75 lakh is stipulated for building assets by trusts and societies subject to conditions prescribed in the scheme guidelines.
- Lok Sabha Members can recommend works within their Constituencies and Elected Members of Rajya Sabha can recommend works within the State of Election (with select exceptions).
- Nominated Members of both the Rajya Sabha and Lok Sabha can recommend works anywhere in the country.

Implementation:

- A Member of Parliament shall give his/ her choice of Nodal District in a prescribed format to the Ministry of Statistics and Programme Implementation with copy to the State Government and to the District Magistrate of the chosen District.
- The annual entitlement of Rs 5 crore shall be released, in two equal instalments of Rs 2.5 crore each, by Government of India directly to the District Authority of the Nodal District of the Member of Parliament concerned.
- The District Authority shall identify the Implementing Agency capable of executing the eligible work qualitatively, timely and satisfactorily.

- It shall be responsible for timely and effective implementation of such works.
- All recommended eligible works should be sanctioned within 75 days from the date of receipt of the recommendation, after completing all formalities.
- The District Authority shall, however, inform MPs regarding rejection, if any, within 45 days from the date of receipt of recommendations, with reasons thereof.

35. Minor forest Produce Scheme for Tribals Rescue

Why in News?

- The Union government's mechanism for marketing of minor forest produce (MFP) through minimum support price (MSP) and development of value chain for MFP' scheme can offer respite to forest-dependent labourers in the wake of novel coronavirus (COVID-19) outbreak.

Minor Forest Produce Scheme:

- The scheme, launched by the Centre in August 2013, provides fair price for MFP collected by tribals through MSP.
- At the time of the launch in 2013, the estimated outlay was Rs 967.28 crore from the central government; states had to pitch Rs 249.50 crore towards capital and revenue expenditure.

Coverage:

- MFP comprises all non-timber forest produce of plant origin such as bamboo, brush wood, stumps, cane, tussar, cocoons, honey, wax, lac, tendu or kendu leaves, medicinal plants and herbs, roots, tubers, etc, according to the Forest Rights Act, 2006.

Available Data:

- Almost 60-70 per cent income of forest dwellers depends on collection and sale of MFP, according to the tribal affairs ministry.
- Recent estimates by Tribal Cooperative Marketing Development Federation indicated that the trade value was approximately Rs 20,000 crore for 55 economically important MFPs.
- The scheme has been scaled up since its inception — between 2016-17 and 2018-19, Rs 60 crore was released for its implementation. However, experts said the money was lying with the states unutilised. In Odisha, total fund available with the state government was over Rs 90 crore till February 2018-end.

- This included interest earned from the bank but the expenditure has been only Rs 3.71 crore, i.e., six per cent of the amount.

Significance:

- State governments can use scheme to tribal labourers' benefit.
- The bonuses from the tendu patta sale, which are sitting with the state governments and are disbursed around August, can be given now.
- This would ensure that people have money in their bank accounts.
- The government can then ensure that food is available in the markets.
- Most migrant labourers returned to their villages for plucking tendu in April-May.
- However, most of them went back early due to COVID-19 outbreak.

36. Agriculture-Farming and allied activities exempted from Lockdown

Why in News?

- Government has granted relaxation in the nationwide lockdown for activities related to agriculture-farming and allied activities with a view to address problems being faced by the farming community. This will also ensure uninterrupted harvesting of crops.

Highlights:

- The Union Home Ministry has issued second Addendum to the Guidelines related to the nationwide lockdown
- Under this Addendum, activities related to Agriculture and related products, services and such other activities have been brought under the exception categories from the 21 day lockdown. This will also allow unhindered harvesting of crops.
- Under the 2nd Addendum issued by the Union Home Ministry the following categories have been exempted from the lockdown:
- Agencies engaged in procurement of agriculture products, including MSP operations.
- 'Mandis' operated by the Agriculture Produce Market Committee or as notified by the State Government. Farming operations by farmers and farm workers in the field.
- 'Custom Hiring Centres (CHC)' related to farm machinery.
- Manufacturing and packaging units of fertilisers, pesticides and seed, and
- Intra and Inter-State movement of harvesting and sowing related machines like combined harvester and other agriculture/horticulture implements.

37. COVID-19 National Teleconsultation Centre (CoNTeC)

Why in News?

- The Union Minister of Health & Family Welfare Dr. Harsh Vardhan launched the National Teleconsultation Centre (CoNTeC)

Highlights:

- It has been conceptualised by the Ministry of Health & Family Welfare and has been implemented by the All India Institute of Medical Sciences, New Delhi.

- The CoNTeC is a Telemedicine Hub wherein expert doctors from various clinical domains will be available 24×7 to answer the multifaceted questions from specialists from all over the country.

- It is a multi-modal telecommunications hub through which 2 way audio-video and text communications can be undertaken from any part of the country as well as the world at large.

- The modes of communication will include simple mobile telephony as well as two way video communications, using WhatsApp, Skype and Google Duo.

- CoNTeC has been made operational at AIIMS with a view to connect the Doctors across the country to AIIMS in real time for treatment of the COVID-19 patients.

- CoNTeC has been set up in the AIIMS so that the small states should also make use of the vast experience of the Doctors at AIIMS.

- The CoNTeC is also fully integrated with the National Medical College Network (NMCN) to conduct a full fledged Video Conference (VC) between the 50 Medical Colleges connected through the NMCN with its National Resource Centre located at SGPGI, Lucknow.

- The patient management advice offered will be standardized as per the national guidelines supplemented protocols developed by the team at AIIMS, nominated by the Director, AIIMS.

Significance:

- The goal of the facility is to at least connect the doctors in the country together to discuss amongst themselves the protocols undertaken and provide the best treatment accordingly.

- The telemedicine guidelines have also been notified by the Government of India and with the help of digital platform and technology, the public at large will get the benefit not only for COVID- 19 but other diseases also.

1. Longetivity in women linked to sex chromosomes

Why in News?

- In general, men live shorter lives than women worldwide, and scientists have proposed various theories as to why that is so. A new research has tested one of many hypothesis, that the real reason is related to the sex chromosomes.

Highlights:

- Men outnumbered women by 37 million in the 2011 Census of India, but among those over the age of 60, there were more than 1 million more women than men.

- The human body is made up of cells, and in the centre of each cell is the nucleus. Chromosomes, which are located inside the nucleus, are structures that hold the genes. It is the genes that determine the various traits of an individual, including eye colour, blood type and sex.

- The human cell has 23 pairs of chromosomes. One pair is of the sex chromosomes, named X and Y, which determine whether an individual is male or female. A female has two X chromosomes (XX) while a male has one X and one Y (XY).

- This hypothesis suggests that the Y chromosome in XY is less able to protect an individual from harmful genes expressed on the X chromosome.

- In a male, as the Y chromosome is smaller than the X chromosome, it is unable to "hide" an X chromosome that carries harmful mutations, which may later expose the individual to health threats. On the other hand, the hypothesis goes, there is no such problem in a pair of X chromosomes (XX) in a female.

- If one of the X chromosomes has genes that have suffered mutations, then the other X chromosome, which is healthy, can stand in for the first, so that the harmful genes are not expressed. This maximises the length of life.

- Research found that across that broad range of species, the heterogametic sex (XY in humans) does tend to die earlier than the homogametic sex (XX in humans), and it is 17.6 per cent earlier on average.

- In species where males are heterogametic (XY), females live almost 21% longer than males. But in the species of birds, butterflies and moths, where females are heterogametic (ZW), males only outlive females by 7%.

2. ICONSAT 2020

Why in News?

- The International Conference on Nano Science and Nano Technology (ICONSAT) under the aegis of Nano Mission, Department of Science and Technology (DST) was recently conducted at Kolkata.

INCOSAT 2020:

- The three-day event deliberates on several thematic topics in the field, bringing out cutting-edge developments in the domain of physical, chemical, materials as well as biological sciences.

Highlights:

- The event focused on the recent advances in the frontier research field of Nano science and Technology.
- The genesis of Nano India was outlined and informed that in the last 20 years' infrastructure and human resources have been built in the field of Nano science and technology.
- The need to create a network of experts in Nano-science was emphasized to integrate the knowledge across sectors like energy, agriculture, transport, health etc.
- The 5Ms – Mechanical, material, machines, manufacturing and manpower, are the need of the hour and the focus should be on how Nano-science and technology can contribute to the challenges like sustainable development and new technology (machine learning, artificial intelligence and so on). Science should be related to the larger section of our society and hence, the young scientists were invited to participate with AWSAR, a DST new initiative through which young scholars can submit popular science stories related to their work while connecting them with societal benefits.

DST Nano Mission:

NANOTECHNOLOGY IN INDIA
- IIT Mumbai is the premier organization in the field of nanotechnology.
- Research in the field of health, environment, medicines are still on.
- Starting in 2001 the Government of India launched the Nano Science and Technology Initiative (NSTI).
- Then in 2007 the Nanoscience and Technology Mission was initiated with an allocation of Rupees 1000 crores for a period of five years.
- The main objectives of the Nano Mission are:
  – basic research promotion,
  – infrastructure development for carrying out front-ranking research,
  – development of nano technologies and their applications,
  – human resource development and
  – international collaborations.

- In addition to existing research on Nano-materials, several emerging areas such as quantum materials, energy materials and nanotechnology for agriculture have been included in cognizance of the identified thrust areas of DST Nano mission.

- The Government of India launched a Mission on Nano Science and Technology (Nano Mission) in May 2007.

- Recognizing the success of Nano Mission, the Union Cabinet accorded approval for continuation of the Nano Mission in its Phase-II during the 12th Plan period with an allocation of Rs. 650 crores. The Department of Science and Technology is the nodal agency for implementing the Nano Mission.

Potential:

- Nanotechnology is science, engineering, and technology conducted at the nanoscale, which is about 1 to 100 Nanometers.

- Nanoscience and nanotechnology are the study and application of extremely small things and can be used across all the other science fields, such as chemistry, biology, physics, materials science, and engineering.

  Nano science is an extraordinary sector to work in and have lot of opportunities for translation of benefits for the society. Nano science has a tremendous application in various areas and in fields like Nano-Medicine, Agriculture, Environment and Energy.

3. Solar Cycle/ Cycle 25

Why in News?

- The sunspots identified by researchers from IISER Kolkata herald the start of a new solar cycle called Cycle 25.

Sunspots:

- Sunspots are temporary phenomena on the Sun's photosphere that appear as spots darker than the surrounding areas. They are relatively cooler spots on the Sun's surface.

- They are regions of reduced surface temperature caused by concentrations of magnetic field flux that inhibit convection. Sunspots usually appear in pairs of opposite magnetic polarity with a leader and a follower.

Solar Cycle:

- From our safe distance of about 148 million km, the Sun appears to be sedate and constant. However, huge solar flares and coronal mass ejections spew material from its surface into outer space.

- They originate from sunspots, an important phenomenon that people have been following for hundreds of years. They originate deep within the Sun and become visible when they pop out.

- Their number is not constant but shows a minimum and then rises up to a maximum and then falls again in what is called the solar cycle.

- Every 11 years or so, the Sun's magnetic field completely flips. This means that the Sun's north and south poles switch places. Then it takes about another 11 years for the Sun's north and south poles to flip back again.

- So far, astronomers have documented 24 such cycles, the last one ended in 2019.

Impacts of Solar Cycle:

- This activity has effects on Earth. For example, eruptions can cause lights in the sky, called aurora, or impact radio communications. Extreme eruptions can even affect electricity grids on Earth.

- Solar activity can affect satellite electronics and limit their lifetime.

- Radiation can be dangerous for astronauts who do work on the outside of the International Space Station. Forecasting of the solar cycle can help scientists protect our radio communications on Earth, and help keep satellites and astronauts safe.

4. Scientists to Test COVID-19 Vaccines on Animals

Why in News?

- Monkeys, mice and ferrets are helping scientists to fight coronavirus because animal models can reveal how infections develop and aid efforts to develop drugs and vaccines.

Highlights:

- A team has found that the animals are susceptible to SARS-CoV-2. The researchers are now studying the course of infection, before testing potential vaccines.

- Ferrets are a popular model for influenza and other respiratory infections because their lung physiology is similar to that of humans, and researchers hope they will mimic aspects of COVID-19 in people. Researchers in China, who had a head start, are leading the work on infecting monkeys and transgenic mice that have the human ACE2 gene.

- But the study warns that no animal model is perfect, and monkeys and mice tell researchers different things about infection, shedding light on factors such as the role of the immune system or how the virus spreads.

- These vaccines will have to be tested in animals such as mice, ferrets and monkeys before they can enter human clinical trials.
- The Asian Development Bank has estimated the loss to global economy could be more than $100 billion.

5. Curing HIV Using Stem Cell Therapy

Why in News?

- Researchers report that a patient who underwent stem-cell transplantation and a chemotherapy drug regimen has been cured of HIV.

Highlights:

- In 2011, a patient based in Berlin (the 'Berlin patient') was the first HIV patient to be reportedly cured of the virus three and half years after undergoing similar treatment.

- Although there was no active viral infection in the patient's body, remnants of integrated HIV-1 DNA remained in tissue samples, which were also found in the first patient to be cured of HIV.

- The authors suggest that these can be regarded as so-called 'fossils', as they are unlikely to be capable of reproducing the

A Cure for HIV — the procedure

Stem cell transplant for HIV involves extracting stem cells from the blood of a donor carrying the gene mutation.

1. donor cells are extracted through the blood
2. Resistant stem cells are filtered and collected
3. Stem Cells are injected into the patient
4. A few transplanted stem cells grow thousands more immune cells

Clearvue Health — Hutter et al

virus. The findings show that the success of stem cell transplantation as a cure for HIV, first reported nine years ago in the Berlin patient, can be replicated.

- As a high-risk treatment, this therapy is unlikely to be offered widely to patients with HIV who are on successful antiretroviral treatment.

- The transplant aimed to make the virus unable to replicate in the patient's body, whilst the body irradiation and chemotherapy targeted any residual HIV virus.

- Ultrasensitive viral load sampling from the London patient's cerebrospinal fluid, intestinal tissue or lymphoid tissue was taken at 29 months after interruption of antiretroviral therapy (ART) and viral load sampling of his blood at 30 months.
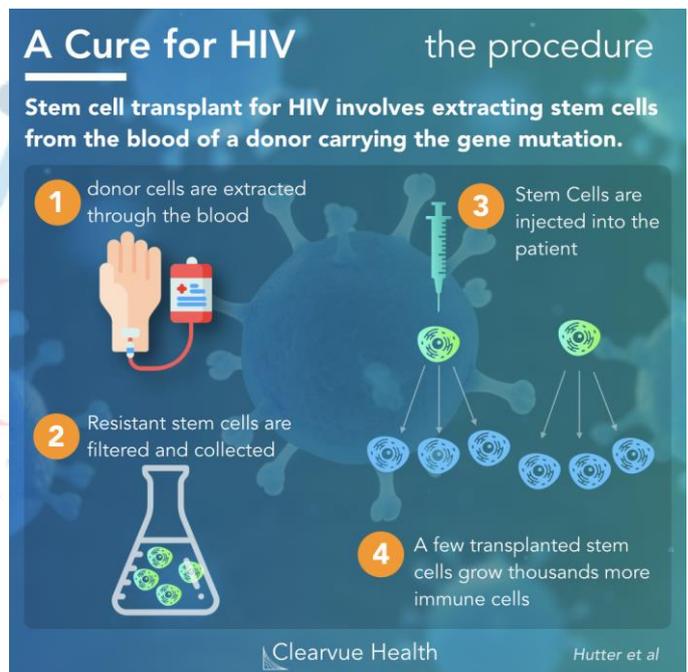
- The results showed no active viral infection was detected in samples of the patient's blood at 30 months or in his cerebrospinal fluid, semen, intestinal tissue and lymphoid tissue 29 months after stopping ART.

- Researchers suggest that the long-term remission of HIV can be achieved using reduced intensity drug regimens, with one stem cell transplant (rather than two) and without total body irradiation.

- Gene editing using the CCR5 has received a lot of attention recently. There are still many ethical and technical barriers to overcome before any approach using CCR5 gene editing can be considered as a scalable cure strategy for HIV.

6. ARI-516-Hybrid variety of Grapes

Why in News?

- Scientists from Agharkar Research Institute (ARI), an autonomous institute of the Department of Science and Technology, have developed a hybrid variety of grapes which is resistant to fungal diseases, high yielding and has excellent juice quality.

ARI-516:

- The hybrid variety ARI-516 has been developed by interbreeding of two species from the same genus — Catawba variety of Vitis labrusca and Beauty seedless variety of Vitis vinifera.

- It has superior quality fruits and higher yield per unit area.

- An early ripening hybrid, it matures in 110 – 120 days after pruning.

- It is tolerant to downy & powdery mildew diseases as well as resistant to anthracnose disease-a group of fungal diseases that affect a variety of plants in warm, humid areas.

- India ranks twelfth in the world in terms of grape production.

- About 78% of grape production in India is utilized for consumption, 17-20 % for raisin production, 1.5 % for wine and 0.5 % for juice.

- Maharashtra leads in the production of grapes in India with a share of 81.22 %.

- A majority of farmers in Maharashtra cultivate 'Thompson seedless' and its clones for table purpose or raisin making.

- These varieties are highly susceptible to fungal diseases which increase plant protection cost. Grapes suffer 8.23-16 % of post-harvest losses.

- Juice making is an excellent option to reduce post-harvest losses.

7. Finding cure for Coronavirus

Why in News?

- Scientists across the world are trying to develop a line of treatment and a possible vaccine for COVID-19, the disease caused by the novel coronavirus, which has infected over 100,000 people and claimed over 4,000 lives.

Highlights:

- A global effort is on to collect and analyse the genetic composition of the new virus, which would be key to developing a cure and a vaccine.
- Laboratories in various countries have been isolating and sharing the genome sequences of the virus on an international platform.
- Whole genome sequencing is the process of determining the complete DNA sequence of an organism's genome at a single time.

Significance of COVID-19 Genome Sequencing:

- Genome sequence is the unique code of genetic material of any organism, and determines the characteristic of any organism.
- The gene composition of novel coronavirus, for instance, is different from that of the influenza virus.
- India has so far reported two sets of genome sequences, both of which are very similar to the original sequences collected from patients in Wuhan.
- When viruses multiply, or reproduce, there is a copying mechanism that transfers the gene information to the next generation.
- When the virus multiplies, there will be small changes, which are called mutations. These mutations accumulate over time, and after prolonged periods, are responsible for evolution into new organisms. The small changes could provide scientists with information about the origin, transmission, and impact of the virus on the patient.
- It could also hold clues to the differing effects the virus could have on patients with different health parameters. Patients with existing medical conditions could be candidates from where genome sequences of this virus could be isolated. This could help scientists to look for clues to possible impact of virus amidst those existing medical conditions.
- New technological tools have made it easier to isolate full genome sequences. Traditional techniques used to take weeks for the extraction, but new machines are able to do it within two to three days.

- Right now, drugs are being repurposed, meaning old drugs for similar diseases are being checked for their efficacy against COVID-19. These drugs, if they work, will require clinical trials, and then can be made widely available for people.

Genome Sequencing:

- Genome: It is an organism's complete set of DNA, including all of its genes.

- Each genome contains all of the information needed to build and maintain that organism. In humans, a copy of the entire genome—more than 3 billion DNA base pairs—is contained in all cells that have a nucleus.

- Genome sequencing: It is figuring out the order of DNA nucleotides, or bases, in a genome—the order of As, Cs, Gs, and Ts that make up an organism's DNA. The human genome is made up of over 3 billion of these genetic letters.

- Sequencing the genome doesn't immediately lay open the genetic information of an entire species. Even with a rough draft of the human genome sequence in hand, much work remains to be done. Scientists still have to translate those strings of letters into an understanding of how the genome works.

8. Treating Drug-Resistant TB

Why in News?

- A small trial (Nix-TB) undertaken at three sites in South Africa to test the safety and efficacy of three oral drugs, bedaquiline, pretomanid and linezolid, in patients with extensively drug-resistant TB (XDR-TB) and multidrug-resistant TB (MDR-TB) showed encouraging results.

Highlights:

- Of the 98 patients who were successfully treated using the three drugs, 63 patients had XDR-TB and 35 had MDR-TB. The treatment success rate was 89% (63 of 71) for XDR-TB and 92% (35 of 38).

- The treatment using the three oral drugs lasted for 26 weeks and was followed-up for six months after the end of the treatment. Patients received the treatment daily for 26 weeks.

- The 90% treatment success in the case of hard-to-treat patients is at par with the success rate seen while treating drug-sensitive TB. Of the 109 patients treated, 11 had unfavourable outcomes while 98 had favourable outcomes.

- Of the 11 patients who had unfavourable outcomes, there were seven deaths and two had a relapse during the six-month follow-up period.

- The MDR-TB patients included in the trial were either not responsive to standard treatment or had discontinued treatment due to side effects.
- Of the three drugs used in the trial, a "high-percentage" of patients experienced adverse effects related to linezolid drug.
- Of the 109 patients treated, 88 patients (81%) had peripheral neuropathy (weakness, numbing and pain usually of hands and feet due to nerve damage), though the symptoms were mild to moderate in the majority of cases.
- Two patients developed optic neuritis, where the optic nerve becomes inflamed, which was resolved when linezolid drug was withdrawn.
- Also, 40 had anaemia, while eight patients had adverse event of the liver and the regime had to be interrupted.

Causes:

- Drug-resistant TB can occur when the drugs used to treat TB are misused or mismanaged. Examples of misuse or Mismanagement Include
  - ✓ People do not complete a full course of TB treatment
  - ✓ Health care providers prescribe the wrong treatment (the wrong dose or length of time)
  - ✓ Drugs for proper treatment are not available
  - ✓ Drugs are of poor quality
- Drug-resistant TB is more common in people who
  - ✓ Do not take their TB drugs regularly
  - ✓ Do not take all of their TB drugs
  - ✓ Develop TB disease again, after being treated for TB disease in the past
  - ✓ Come from areas of the world where drug-resistant TB is common
  - ✓ Have spent time with someone known to have drug-resistant TB disease

9. Herd immunity

Why in News?

- Britain has announced a unique strategy to tackle Coronavirus situation. The chief scientific adviser to the UK government, said authorities would contain the spread of the virus but would "not suppress it completely", in order to build up a degree of 'herd immunity'.

Highlights:

- Britain has faced criticism for its soft approach to the coronavirus. The scientific advisor's statement, too, led to a barrage of criticism from medical professionals and the public.
- Herd immunity is when a large number of people are vaccinated against a disease, lowering the chances of others being infected by it.
- When a sufficient percentage of a population is vaccinated, it slows the spread of disease. It is also referred to as community immunity or herd protection.
- Herd protection of the unvaccinated occurs when a sufficient proportion of the group is immune.
- The decline of disease incidence is greater than the proportion of individuals immunized because vaccination reduces the spread of an infectious agent by reducing the amount and/or duration of pathogen shedding by vaccines, retarding transmission.
- The approach would require those exposed to the virus to build natural immunity and stop the human-to-human transmission. This will, it is believed, subsequently halt its spread.
- Earlier this month, WHO said COVID-19 was a new virus to which no one has immunity. That means more people are susceptible to infection, and some will suffer severe disease.
- Large number of people have criticised the government's policy regarding herd immunity. They say that immediate focus should have been to save lives.

10. Mollusc Shell Indicates Shorter Length of Days Long Ago

Why in News?

- Scientists picked up its fossil from dry land in the mountains of Oman. Their analysis provided new clues about the behaviour of the Earth.

Highlights:

- It has long been known that Earth's spin has slowed over time. Previous climate reconstructions, however, have typically described long-term changes over tens of thousands of years.
- Earth spun 372 times a year 70 million years ago, compared to the current 365. This means the day was 23½ hours long, compared to 24 today.
- This new measurement, in turn, informs models of how the Moon formed and how close it has been to Earth over their 4.5-billion-year gravitational relationship The ancient mollusc, Torreites sanchezi, belonged to an extinct group called rudist clams.

- At 70 million years ago, it belonged to the Late Cretaceous and was around the time this epoch ended that dinosaurs went extinct.

- Using lasers on a single individual, scientists sampled tiny slices and counted the growth rings accurately. This allowed them to determine the number of days in a year 70 million years ago, and more accurately calculate the length of a day.

- The period of Earth's orbit has remained the same. One year 70 million years ago was as long as one year today. However, the year would have been 372 days long, with each day half-an-hour shorter than one day today.

- Friction from ocean tides, caused by the Moon's gravity, slows Earth's rotation and leads to longer days. And as Earth's spin slows, the Moon moves farther away, at 3.82 cm per year.

- If this rate is projected back in time, however, the Moon would be inside the Earth only 1.4 billion years ago. Which cannot be, for the Moon has been with us much longer. Which means the Moon's rate of retreat has changed over time.

11. Experimental Coronavirus Vaccine

Why in News?

- A healthy volunteer is the first person in the U.S. to receive a dose of an experimental coronavirus vaccine as part of a new Clinical Trial.

Highlights:

- Over the next six weeks, researchers plan to enrol 45 participants in the trial, which will test the safety of the vaccine as well as its ability to induce an immune response in the volunteers.

- The National Institute of Allergy and Infectious Diseases (NIAID) allowed the new vaccine to be fast-tracked into clinical trials without thorough testing in animal models, which usually stands as a strict prerequisite to human testing.

- New drugs must pass through three iterative phases of clinical trials before being deemed safe and effective for widespread use.

- Assuming the initial tests go well, it may be 12 to 18 months before any vaccine is ready for public use. The trial is known as a "Phase 1 clinical trial," meaning its main purpose is to provide information about how the vaccine interacts with a healthy human body.

- Phase 1 trials examine a small group of people, typically between 20 and 80 individuals, who receive different doses of an experimental treatment.

- Over the course of several months, researchers monitor how each volunteer metabolizes the given treatment and what common side effects emerge in response to different doses.
- The 45 volunteers in the new trial will receive varying doses of the new vaccine, called mRNA-1273, and be monitored over a 14-month period. Volunteers will receive two injections of the vaccine in the upper arm, with a 28-day gap between doses.
- In addition to monitoring for side effects, the researchers will test whether the vaccine triggers an immune response by analyzing the volunteers' blood for antibodies. If the vaccine works as designed, the immune system should generate antibodies that grab hold of a characteristic protein found on the surface of the novel coronavirus SARS-CoV-2.
- Rather than introducing a dead or weakened virus into the body to prompt this reaction, as conventional vaccines do, the vaccine instructs cells to build the viral protein themselves using a molecule called messenger RNA (mRNA).

12. Potential Fishing Zone (PFZ) Advisories

Why in News?

- The Indian National Centre for Ocean Information Services (INCOIS), Hyderabad has reported that Oceansat Satellite data from ISRO are used to prepare the PFZ advisories on the potential rich fishing areas and provide to the sea faring fishermen in all states.

Potential Fishing Zone (PFZ):

- This is the first advisory service started by INCOIS. The backbone of this service is the real-time data for ocean color and SST provided by the OCEANSAT and NOAA respectively.
- This service was started because there was a need to identify the potential fishing zones to help the fishermen to get better catch while they were at the sea.
- This service was started by the Ministry of Earth Sciences with the help of the Department of Space and several institutions under the Ministry of Agriculture.

How it Works?

- This service makes use of parameters such as sea surface temperature and chlorophyll content provided by NOAA-AVHRR and Oceancolor satellites.
- Features such as oceanic fronts, Meandering Patterns, Eddies, Rings, Up Welling areas etc. are identified sites for fish accumulation.
- These features can easily be identified from Sea Surface Temperature and Chlorophyll data.

- The availability of Chlorophyll from OCEANSAT and MOdDIS has further enriched these advisories in the recent years.
- Hence, PFZ advisories have helped the fishing community to locate the fishing zones with accuracy.

Special Advisories for Fisherman:

- Another feature of PFZ service is the generation of species-specific advisory to enable the fishermen folk to distinguish between the exploited and under-exploited species in the potential fishing zones.
- This enables them to have sustainable fishery management by targeting only the under-exploited species in the fishing zones.
- This approach enables them to avoid fishing the over-exploited species over and over again.

13. Identifying Rogue Drones

Why in News?

- IIT-Madras researchers have developed an electronic warfare model that could help the Armed Forces track down unregulated drones and secure air space.

Highlights:

- A 2019 report states that India reported over six lakh rogue drones of varying size and capacity, of which most of them were termed "potential threat".
- Ideally, law enforcement drones are used by Defence Forces and Intelligence Agencies for surveillance and rescue operations among other things. This is an electronic warfare model that could help the Armed Forces secure air spaces and track down unregulated drones.
- It 'hacks' into rogue drones and sends false GPS signals for communication. The target drone's GPS sensor would lock onto their fake radio station, which transmits signals at a much higher rate than the available one.
- In doing so, the drone generates fake GPS packets that are received by the enemy, thereby calibrating the rogue drones' latitude and longitude positions, when it enters the airspace.
- The drone will act as a GPS satellite.
- The rogue drone would think it is a legit source and would begin to communicate from this radio station. By this operation, we can change its latitude, longitude and altitude, and force them to land safely.

- The biggest advantage of the prototype lies in its ability to operate beyond the line of sight control, the upper limit being 400 feet altitude for drone operations. It can also intercept phone calls at 250 feet above ground level.

14. Hydroxychloroquinine for Covid-19 Treatment

Why in News?

- Hydroxychloroquine, a drug that has existed for several decades, could see a resurgence of demand, after the Indian Council of Medical Research (ICMR) recommended its use as a preventive medicine against the novel coronavirus disease.

Highlights:

- Hydroxychloroquine (not to be confused with anti-malaria drug chloroquine) is an oral drug used in the treatment of autoimmune diseases such as rheumatoid arthritis.

- Last week, US President Donald Trump had said a hydroxychloroquine-azithromycin combination could be a "game changer" in the fight against COVID-19.

- The drug shows antiviral activity in vitro against coronaviruses, and specifically, SARS-CoV-2. Pharmacological modelling based on observed drug concentrations and in vitro drug testing suggest that prophylaxis with hydroxychloroquine at approved doses could prevent SARS-CoV-2 infection and ameliorate viral shedding.

- The US Centers for Disease Control and Prevention (CDC) says: Hydroxychloroquine is currently under investigation in clinical trials for pre-exposure or post-exposure prophylaxis of SARS-CoV-2 infection, and treatment of patients with mild, moderate, and severe COVID-19. The CDC says both hydroxychloroquine and chloroquine have in vitro activity against SARS-CoV, SARS-CoV-2, and other coronaviruses, with hydroxychloroquine having higher potency against SARS-CoV-2.

- The National Taskforce for COVID-19 has recommended hydroxychloroquine for prophylaxis in case of asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19 and asymptomatic household contacts of laboratory confirmed cases. While the roles of chloroquine and hydroxychloroquine in management of COVID-19 are still open questions for the scientific community, the azithromycin-hydroxychloroquine combination is part of an upcoming multi country trial anchored by the WHO in the fight against COVID-19.

15. New model of Solar System's Protective Bubble

Why in News?

- Boston University astrophysicist and collaborators reveal a new model of our heliosphere that's shaped somewhere between a croissant and a Beach Ball.

Highlights:

- The heliosphere is a vast region, extending more than twice as far as Pluto. It casts a magnetic "force field" around all the planets, deflecting charged particles that would otherwise muscle into the solar system and even tear through DNA.

- The heliosphere, despite its name, is not actually a sphere. Space physicists have long compared its shape to a comet, with a round "nose" on one side and a long tail extending in the opposite direction.

- In 2015, using a new computer model and data from the Voyager 1 spacecraft, researchers came to a different conclusion: they proposed that the heliosphere is actually shaped like a crescent, not unlike a freshly baked croissant, in fact.

- In this "croissant" model, two jets extend downstream from the nose rather than a single fade-away tail.

- By timing particles echoing off the boundary of the heliosphere and correlating them with ions measured by the twin Voyager spacecraft, Cassini scientists concluded that the heliosphere is actually very nearly round and symmetrical: neither a comet nor a croissant, but more like a beach ball.

- Unlike most previous models, which assumed that charged particles within the solar system all hover around the same average temperature, the new model breaks the particles down into two groups.

- First are charged particles coming directly from the solar wind. Second are what space physicists call "pickup" ions. These are particles that drifted into the solar system in an electrically neutral form. Researchers studying exoplanets–planets around other stars are keenly interested in comparing our heliosphere with those around other stars. Because they believe it holds recipe for formation of life.

- Researchers are still working on DNA-shredding interstellar particles and what they mean for life on Earth and on other planets. Researchers are hoping to stir NASA to launch a next-generation interstellar probe that will cut a path through the heliosphere and directly detect pickup ions near the heliosphere's periphery.

16. India to join WHO's COVID-19 Trials

Why in News?

- India has volunteered to participate in the World Health Organization's (WHO) ongoing solidarity trial for developing vaccines for Covid-19.

Highlights:

- WHO with its partners is organizing a study called the solidarity trial in many countries in which some of the untested treatments are compared with each other.

- The study has been designed to generate the robust data needed to show which treatments are the most effective.

- In order to look at newer drugs that might come, India is soon likely to participate in the WHO solidarity trial for COVID-19. Earlier we did not do it because our numbers were so small and contribution would have looked minuscule.

- WHO's multi-country solidarity trials aims to isolate drugs approved by regulators for other diseases that can be utilised in the Covid-19 fight.

- The reason already safety-tested drugs are being looked at is because these do not need lengthy clinical trials. Among the drugs lined up for immediate testing are antiviral intravenous drug remdesivir, HIV combination lopinavir and ritonavir sold as Kaletra; and anti-malarial chloroquine, and a related drug, hydroxychloroquine. Many countries, including Argentina, Bahrain, Canada, France, Iran, Norway, South Africa, Spain, Switzerland, and Thailand, have already confirmed that they will join the solidarity trial, according to WHO. WHO has also created a Covid-19 Solidarity Response Fund, to help provide protective equipment for front-line health workers, equip diagnostic laboratories, improve surveillance and data collection, establish and maintain intensive care units.

- It also aims to strengthen supply chains, accelerate research and development of vaccines and therapeutics, and take other critical steps to scale up the public health response to the Covid-19 pandemic.

17. Artificial Intelligence can Aid Eye Testing

Why in News?

- Artificial Intelligence has been used in a hi-tech screening tool developed by Google and an international team of researchers for detecting diabetic retinopathy a diabetic complication in the eye.

Highlights:

- Diabetic patients are normally asymptomatic when the eye is concerned until the late stages or advanced stage when treatment is difficult or not so effective. So it is important to find the patient at an early stage and help prevent loss of vision.

- A study, which screened over 3,000 patients with diabetes, has shown that the AI's performance exceeded the conventionally used manual grading method used to identify diabetic retinopathy .

- The AI had a specificity and sensitivity of around 90%. A specialised retinal fundus camera was used to take photos of the eye. Normally, to evaluate the retina, we dilate the pupil to allow more light to enter the eye and illuminate the back of the eye.

- But in this fundus photography it is not necessary as a coherent beam of light can enter the small gap (Pupil) and take an image in just two to three minutes.

- Once the images are taken, it is fed into the computer and the AI tool screens it for diabetic retinopathy.

- The AI tool was shown over 120,000 images of the retina and taught to identify what each lesion meant. It was also taught to grade the severity (none, mild, moderate, severe or proliferative) and give an instant report along with the recommendations.

- Beyond diabetic retinopathy researchers are also working on a number of other research projects using AI to tackle healthcare problems. Earlier, a research paper had showed that AI models can help detect breast cancer in mammography images more accurately than doctors.This research is still in the early stages, but it shows that AI can be a path forward to improve screenings for breast cancer and boost the chances of survival.

18. Population size shapes evolution pattern in E-coli

Why in News?

- Studying cultures of E. coli bacteria, a group of evolutionary biologists from Indian Institute of Science Education and Research (IISER), Pune, has found that the population size determines the kind of fitness trade-offs the microbes adopt.

Highlights:

- Escherichia coli, also known as E. coli, is a Gram-negative, facultative anaerobic, rod-shaped, coliform bacterium of the genus Escherichia that is commonly found in the lower intestine of warm-blooded organisms.

- Fitness trade-off may be understood in the following manner: Organisms do not have the capacity to maximise all their functions at the same time.

- Often when they enhance one function, another function suffers, or when they adapt to survive well in one environment, they cannot survive or reproduce well in another environments. This is called a fitness trade-off.

- This concept has been used by evolutionary biologists to explain why species prefer one environment to another. There are several ways in which the concept of fitness trade-off originates.

- Evolution causes some organisms to be generalists, by which it is meant that they can survive in different environments, and basically they will have an tolerable level of fitness in all environments. The other option is they evolve into specialists, where the organism will have a high degree of fitness in a particular environment while having low fitness in other environments. An example of this is in the context of antibiotic resistance – generalists tolerate a wide range of distinct antibiotics (for example, multidrug resistant bacteria). On the other hand, specialist bacteria have to show a fitness trade-off.

- They resist one antibiotic (for instance, rifampicin) but become susceptible to another (for instance, tetracycline).

- The study experimentally affirms the link between population size and evolution of fitness trade-offs. Owing to their higher extent of specialisation, larger populations can become more vulnerable to sudden changes in the environment.

- If the environment abruptly shifts between two states that show fitness trade-offs with each other, then populations with a history of evolution at larger numbers would be at a greater disadvantage than historically smaller populations.

- For example, costs of antimicrobial resistance are expected to check the spread of resistant microbes if antimicrobials are removed abruptly from the environments. Moreover, pathogens are also expected to experience fitness trade-offs when they migrate across different hosts.

19. NASA's Mission to Study Giant Solar Particle Storms

Why in News?

- NASA has selected a new mission to study how the Sun generates and releases giant space weather storms, known as solar particle storms, into planetary space.

Highlights:

- Such information will improve understanding of how our solar system works and can ultimately help protect astronauts traveling to the Moon and Mars by providing better information on how the Sun's radiation affects the space environment they must travel through.

- The new mission, called the Sun Radio Interferometer Space Experiment (SunRISE), is an array of six CubeSats operating as one very large radio telescope. NASA chose SunRISE in August 2017 as one of two Mission of Opportunity proposals to conduct an 11-month mission concept study.

- The mission design relies on six solar-powered CubeSats to simultaneously observe radio images of low-frequency emission from solar activity and share them via NASA's Deep Space Network.

- The constellation of CubeSats would fly within 6 miles of each other, above Earth's atmosphere, which otherwise blocks the radio signals SunRISE will observe.

- Together, the six CubeSats will create 3D maps to pinpoint where giant particle bursts originate on the Sun and how they evolve as they expand outward into space.

- This, in turn, will help determine what initiates and accelerates these giant jets of radiation. The six individual spacecraft will also work together to map, for the first time, the pattern of magnetic field lines reaching from the Sun out into interplanetary space.

- NASA's Missions of Opportunity maximize science return by pairing new, relatively inexpensive missions with launches on spacecraft already approved and preparing to go into space.

1. Ajodhya Hills Hydel Project

Why in News?

- Tribals opposed to a proposed hydel power project in the remote Ajodhya Hills in West Bengal have threatened to heighten their protests.

Highlights:

- According to the Forest Rights Act, 2006 if a forest land has to be acquired, then at least 50% of the affected population dependent on the land has to give consent in gram sabha, and a third of the villagers have to be women.

- The villagers protesting against the project refer to the 900 MW Purulia Pumped Storage Project (PPSP) that came up at Ajodhya Hills in the Baghmundi block of Purulia district around a decade ago.

- The villagers allege that it lead to massive loss of vegetation and hundreds of tribals lost their livelihoods.

Ajodhya Hills:

- Ajodhya Hills is a small plateau with hilly surroundings located in the Purulia district of the state West Bengal.

- It is the easternmost part of the Chhotanagpur Plateau and extended part of Eastern Ghats range. Highest peak of Ajodhya Hills is Chamtaburu.

- The hills are largely inhabited by Santals, an ethnic tribe with a population of over 25,00,000 (25 lakh) across West Bengal.

- The tribe speaks Santali, an Austroasiatic language that is the most widely-spoken of the Munda languages.

- The Turga Pumped Storage Project (TPSP) aims to utilise the waters of the Turga, a tributary of the Subarnarekha river, for peak power generation on a pumped storage type development.

2. Export of Onions

Why in News?

- In the interest of farmers, the Government permits export of onions with effect from 15th March 2020.

Highlights:

- The Directorate General of Foreign Trade, Department of Commerce issued a notification in this regard. The notification says that Onions, which were in the "prohibited" category as per the present policy, will be under the category "free" in the revised policy.
- The effect of the notification will be that the export of all varieties of onions has been made 'free' without any condition of Letter Of Credit and Minimum Export Price, with effect from the said date.

Directorate General of Foreign Trade (DGFT):

- The DGFT is an attached office of the Ministry of Commerce and Industry, formed in 1991.
- It is headed by the Director General of Foreign Trade.
- It is involved in the regulation and promotion of foreign trade through regulation.
- Keeping in line with liberalization and globalization and the overall objective of increasing of exports, the DGFT has since been assigned the role of a "facilitator".
- The shift was from prohibition and control of imports/exports to promotion and facilitation of exports/imports, keeping in view the interests of the country.
- The Directorate is responsible for formulating and implementing the Foreign Trade Policy with the main objective of promoting India's exports.
- The DGFT also issues scrips/authorization to exporters and monitors their corresponding obligations through its network of regional offices. It is headquartered in New Delhi.

3. Star Labelling Programme

Why in News?

- The Bureau of Energy Efficiency (BEE) has included Deep Freezer and Light Commercial Air Conditioners (LCAC) under its Star Rating Programme on a voluntary basis.

Highlights:

- The program will be initially launched in voluntary mode from 2ndMarch, 2020 to 31st December, 2021. Thereafter, it will be made mandatory after reviewing the degree of market transformation in this particular segment of appliances.
- In order to cover split ACs beyond the scope of existing BEE star labeling program upto a cooling capacity of 18kW, BEE has prepared a star labeling program for split ACs having cooling capacities in excess of 10.5kW and upto 18.0 kW.
- This category of Air conditioners is termed as LCAC primarily due to their application in commercial air conditioning. Through this initiative, it is expected to save around 2.8 Billion Units by FY2030, which is equivalent to GHG reduction of 2.4-million-ton Carbon Dioxide.

Why Such Move?

- Energy Efficiency has the maximum GHG abatement potential of around 51% followed by renewables (32%), biofuels (1%), nuclear (8%), carbon capture and storage (8%) as per the World Energy Outlook (WEO 2010).
- India can avoid building 300 GW of new power generation up to 2040 with the implementation of ambitious energy efficiency policies (IEA – India 2020).
- Successful implementation of Energy Efficiency Measures contributed to electricity savings of 86.60 BUs i.e. 7.14% of total electricity consumption of the country and emission reduction of 108.28 million tonnes of CO2 during 2017-18.

Star Labeling Programme:

- The programme has been formulated by Bureau of Energy Efficiency, as part of its mandate, under the Energy Conservation Act, 2001.
- Under this Programme, BEE has covered 24 appliances till date wherein 10 appliances are under the mandatory regime. The existing BEE star labelling program for Air Conditioners is based on Indian Standard IS 1391 part 1, part 2 and covers AC with cooling capacities up to 10.5kW.

4. India Smart Utility Week 2020

Why in News?

- India-European Union Flagship Call announced on Integrated Local Energy Systems at India Smart Utility Week 2020.

Highlights:

- Sweden and India announce co-funding for a multi-million dollar programme on Smart Grids.
- India-European Union Flagship Call on Integrated Local Energy Systems was announced at India Smart Utility Week 2020 in the presence of Secretary, Department of Science & Technology (DST) and European Union Ambassador to India.

Objective:

- This partnership between Indian and European Union will help in Clean Energy and Climate and this partnership will foresee strengthened cooperation in energy research and innovation, mainly in renewable energy and its integration in the energy system.
- The collaboration can make energy supply cleaner, more efficient and affordable to all.
- This Indo-EU flagship call is fully in line with both the European Union's and India's involvement in Mission Innovation (MI).

Mission Innovation:

- It is a global initiative of 24 countries and the European Commission (on behalf of the European Union), committed to reinvigorate and accelerate global clean energy innovation with the objective to make clean energy widely affordable.
- This Indo-EU Flagship call will give novel solutions encompassing local integration across various energy vectors and increase the share of renewables in the energy mix and high energy efficiency.

India-Sweden Collaborative Industrial Research & Development Programme:

- Meanwhile, Sweden and India have announced the India-Sweden Collaborative Industrial Research & Development Programme at India Smart Utilities Week.

- The joint Programme, co-funded by Indian Department of Science & Technology (DST) and Swedish Energy Agency, will bring together world class expertise of Sweden and India to address challenges in the area of Smart Grids.
- A Protocol of Cooperation was signed between Swedish Energy Agency and DST discussed how this will benefit both countries.

Significance:

- With India raising its ambition for renewable energy manifold, research, development and innovation the area of Smart Grids assumes high priority as essential enabler.
- High research development and innovation investments, especially, in partnership and collaborations, can accelerate Smart Grid technologies development in the near future.
- Sharing the common vision on sustainability, Sweden and India are adding one more collaborative programme to their already vibrant partnership portfolio.
- During the last five years DST has set up 3 major international smart grids networked virtual centers and partnered with 24 countries for smart grids research, development and innovation.
- As co-lead of Mission Innovation (MI) Smart Grids innovation challenge, DST has supported 9 MI projects envisaging partnership of 17 Indian and 20 Foreign Institutions across 9 countries. DST has already made an investment of 60 million US $ in Smart Grids.
- India-Sweden Industrial led Research & Development collaborative programme on Smart Grids at a collective investment of US $5 Million will help to transform the clean energy sector into a secure, adaptive, sustainable and digitally enabled ecosystem and provide reliable and quality energy for all.

Sweden-India Science and Innovation Partnership:

- The Sweden-India Science and Innovation Partnership has grown in strength during the last couple of years.
- High-level visits from both sides have further boosted interest in bilateral collaboration between the two countries.
- The first ever India-Sweden High Level Dialogue on Innovation Policy was held in New Delhi during the state visit of their Majesties the King and Queen of Sweden to India in December 2019.

India Smart Utility Week 2020:

- India Smart Grid Forum (ISGF) has been organising its flagship annual event, India Smart Grid Week (ISGW) since 2015.
- It is considered as one of the top five international events on Smart Grids and Smart Cities.
- ISUW 2020 is being conducted from 03 – 07 March 2020 in New Delhi, India.
- It is observed to address all the challenges regarding operational efficiencies, policy and regulations, business models, safety guidelines, standards and to discuss future technologies for successful integration into the smart city systems.
- ISUW 2020 will be organised as an International Conference and Exhibition on Smart Energy and Water for Smarter Cities.
- It will bring together India's leading Electricity, Gas and Water Utilities, Policy Makers, Regulators, Investors and world's top-notch Smart Energy Experts and Researchers to discuss trends, share best practices and showcase next generation technologies and products in smart energy and smart cities domains.

5. Micro-Irrigation Hit by Lack of Funds

Why in News?

- The prevailing economic slowdown appears to have affected the implementation of the projects to provide drip and sprinkler implements to farmers in state of Telangana.

Highlights:

- For providing the drip and sprinkler implements to the targeted extent of land, an amount of Rs 669 crore is required, including RS 270 crore contribution of the Centre and about Rs 400 crore share of the State.

Micro-Irrigation:

- Drip irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.
- The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. Depending on how well designed, installed, maintained, and operated it is, a drip irrigation system can be more efficient than other types of irrigation systems, such as surface irrigation or sprinkler irrigation.

Advantages:

- Fertilizer and nutrient loss is minimized due to a localized application and reduced leaching.
- Water application efficiency is high if managed correctly. Field leveling is not necessary.
- Fields with irregular shapes are easily accommodated. Recycled non-potable water can be safely used. Moisture within the root zone can be maintained at field capacity. Soil erosion is lessened. Weed growth is lessened. Water distribution is highly uniform, controlled by the output of each nozzle. Labour cost is less than other irrigation methods.

Disadvantages:

- Initial cost can be more than overhead systems.
- The sun can affect the tubes used for drip irrigation, shortening their lifespan.
- If the water is not properly filtered and the equipment not properly maintained, it can result in clogging or bioclogging.
- Drip tape causes extra cleanup costs after harvest. Users need to plan for drip tape winding, disposal, recycling or reuse.
- In lighter soils subsurface drip may be unable to wet the soil surface for germination. Requires careful consideration of the installation depth.
- The PVC pipes often suffer from rodent damage, requiring replacement of the entire tube and increasing expenses.

6. AT-1 bonds for Yes Bank Reconstruction

Why in News?

- Bondholders' investments in Yes Bank Ltd.'s additional tier-1 securities are likely to get converted to equity as part of a settlement plan between the lender and investors.

Highlights:

- The settlement plan follows the Reserve Bank of India's draft proposal to fully write-off the AT-1 bonds on Yes Bank's book last week. That came after the government placed the lender under month-long moratorium.
- The RBI reconstruction plan for Yes Bank puts to risk nearly Rs 9,000 crore worth of AT-1 bonds, affecting bondholders including Nippon Life India AMC, mutual fund house Franklin Templeton, UTI Mutual Fund, SBI Pension Fund Trust and Indiabulls Housing Finance, among others.

- As per RBI rules based on the Basel-III framework, AT-1 bonds have principal loss absorption features, which can cause a full write-down or conversion to equity on breach of a pre-specified trigger of common Tier 1 capital ratio falling below 6.125 per cent. Banks cannot use conversion or write down of AT1 instruments to support expansion of balance sheet. It is only intended to replenish the equity of a bank in the event it is depleted by losses.

- As per the draft resolution plan, Yes Bank's equity share capital would be altered to Rs 5,000 crore, while the existing equity shares would be increased to 2,400 crore worth Rs 2 each. While SBI's initial investment is to cover for 49 percent stake, it will be required to maintain at least 26 percent stake for three years.

AT-1 Bonds:

- The concept of AT1 bonds or additional Tier 1 bonds was brought in after a bunch of global banks went bust during the global financial crisis and regulators formulated Basel III norms for banks.

- One of the key things Basel III did was to raise the amount of their own capital that banks needed to carry in their balance sheets, before they raised external deposits and loans.

- Basel III norms require Indian banks to maintain a total capital ratio of 11.5%, split into 8% in tier 1 capital (own equity, reserves etc) and tier 2 (supplementary reserves and hybrid instruments). The AT 1 bonds, also known as "unsecured subordinated perpetual non-convertible" bonds, make up part of a bank's Tier 1 or permanent capital. Banks issue them to make sure they can meet Basel III norms on equity capital.

7. Nidhi Company

Why in News?

- The Central Government has amended the provisions related to NIDHI under the Companies Act and the Rules (effective from 15.08.2019).

Highlights:

- The step was taken by the government in order to make regulatory regime for Nidhi Companies more effective and also to accomplish the objectives of transparency & investor friendliness in corporate environment of the country.

- The amended provisions of the Companies Act (Section 406) and Nidhi rules (as amended) require that the Nidhi companies have to apply to the Central government for updation of their status/declaration as Nidhi Company in Form NDH-4.

Nidhi Company:

- Under Nidhi Rules, 2014, 'Nidhi' is a company which has been incorporated as a Nidhi with the object of cultivating the habit of thrift and saving amongst its members, receiving deposits from, and lending to, its members only, for their mutual benefit.
- Nidhi Company is a type of Non-Banking Financial Company (NBFC).
- It is formed to borrow and lend money to its members.
- It works on the principle of mutual benefit.
- Nidhi Company is not required to receive the license from Reserve Bank of India (RBI) and hence it is easy to form (unlike other NBFCs). It is registered as a public company and should have "Nidhi Limited" as the last words of its name. They are governed by Nidhi Rules, 2014.
- Nidhi companies are more popular in southern India and 80% of such companies are in Tamil Nadu.
- A Nidhi company cannot deal in chit funds, leasing finance, hire-purchase finance, insurance or securities business.
- It is also prohibited from lending money or accepting deposits from non-members.
- Additionally, it cannot advertise to ask for Deposits.

8. Hubballi-Ankola Railway Link Project

Why in News?

- The controversial Hubballi-Ankola railway line project, which came up for discussion at the Karnataka State Board for Wildlife meeting, saw stiff opposition from a majority of the board members.

Highlights:

- In the year 1997-1998 the Ministry of Railways sanctioned the construction of the 168.289 KM broad gauge railway line from Hubli (Dharwad District) to Ankola (Uttara Kannada District) of Karnataka, to provide a direct rail link to the coast.
- The proposed rail project entails large-scale destruction of forests, including the felling of nearly 2.2 lakh fully grown trees in a biodiversity hotspot.
- There was political pressure from elected representatives of the region to get environmental clearance and permission from the wildlife board on the grounds that the project was a demand of the people of north Karnataka.

- Officials supportive of the project argued that the railway line did not cut through a protected area and was outside it, and hence the permission of the board was not required.

- The project was rejected by the Central Empowered Committee of the Supreme Court, the Ministry of Environment and Forests had opposed it, and even the National Tiger Conservation Authority (NTCA) had rejected it twice on the grounds that the damage rendered by such a linear project through pristine forests could not be mitigated and the adverse effect on flora and fauna would be irreversible.

- The 164.44-km railway line passes through pristine forests between two major protected areas, Kali Tiger Reserve and Bedthi Conservation Reserve.

- A 75-km stretch between Hubballi and Yellapur comprises plain land, while a 56-km stretch between Yellapur and Sunksal is a ghat section where the track alignment cuts through the Western Ghats.

9. India not obligated to implement WTO's Dispute Panel Recommendations

Why in News?

- As per the reply of Commerce and Industry Minister in Lok Sabha, India is under no obligation to implement the recommendations of the WTO's dispute panel on its export promotion schemes.

What is the Issue?

- A dispute settlement panel of World Trade Organization (WTO) in its report issued to members on 31 October 2019 has ruled that India's export-related schemes (including SEZ scheme) are in the nature of prohibited subsidies under the Agreement on Subsidies and Countervailing Measures and are inconsistent with WTO norms.

- The panel had given a time-frame of 180 days for withdrawal of Special Economic Zone (SEZ) scheme.

- India had appealed at the WTO's appellate body against this ruling.

- But due to non-functioning of appellate body (of the WTO's dispute settle mechanism), the appeal has been kept in suspension.

- Till the appeal is disposed of, India is under no obligation to implement the recommendations of panel.

WTO's Dispute Settlement Mechanism:

WTO Dispute Settlement Mechanism

- Introduced into the multilateral trading system in the Uruguay Round (1994)
- Formal framework for settling disputes between WTO Member States
- Guidance on TRIPS interpretation
- Priority: amicable settlement through consultations
- Stages of procedure:
  - 60 days: Consultations, mediation
  - 45 days: Panel set up and 3 (possibly 5) panelists appointed by Dispute Settlement Body (DSB), following consultations with parties
  - 6 months: Final panel report to parties
  - 3 weeks: Final panel report to WTO members
  - 60 days: DSB adopts report (if no appeal)
    Total: 1 year (without appeal)
  - 60-90 days: Appeals report
  - 30 days: Dispute Settlement Body adopts appeals report
    Total = 1y 3m (with appeal)

- The Appellate Body of the World Trade Organization set up in 1995, is a standing body of 7 persons that hears appeals from reports issued by panels in disputes brought on by WTO members. A dispute arises when a member government believes another member government is violating an agreement or a commitment that it has made in the WTO.

- By joining the WTO, member countries have agreed that if they believe fellow members are in violation of trade rules, they will use the multilateral system of settling disputes instead of taking action unilaterally.

Current Scenario:

- The dispute settlement mechanism requires at least three members to function.

- The United States has blocked the appointments of new members and the reappointments of members who had completed their four-year tenures, the membership of the body has decreased to three persons (instead of the required seven).

- The US believes the WTO is biased against it, and has criticized it for being unfair.

- In 2019, several developing countries met in India to discuss ways to prevent the WTO's dispute resolution system from collapsing all together.

- India is involved in 15 trade disputes, mostly against the US, at the WTO at present.

10. Flexi Fare System

Why in News?

- During the eight months period from 1st July 2019 to 29th February 2020, approximately 28.93 Lakh berths remained vacant in Rajdhani, Shatabdi and Duronto type trains having flexi fare.

Flexi Fare System:

- The flexi-fare scheme was introduced by the IRCTC in 2016 for the 142 "premium trains" such as Shatabdi, Rajdhani and Duronto (now Vande Bharat Exp. as well).

- Under this dynamic pricing system, the base fare increases by 10% with every 10% of berths sold, with a limit set at 1.5 times the original price.

- The scheme was applicable to all classes, except AC first class and executive class. The pricing system is still in force.

Issues with the System:

- After the introduction of flexi-fares, the railways lost 700,000 passengers in just 11 months while the additional revenue earned as a result of the scheme was ₹ 552 crore.

- While drawing upon the fundamentals of dynamic pricing, what Indian Railways failed to introduce was the simple principle that flexi-fares work ways, hikes and declines.

- The railways model just focused on increasing fares with no provision for a decrease in price when demand is low. While half of the decision makers in the Railway Board support it, half of them oppose it stating that what the railways requires is an increase in ticket prices across the board.

11. Setting Up of National Technical Textile Mission

Why in News?

- The government has approved the proposal for creation of National Technical Textiles Mission for a period of 4 years with an outlay of Rs.1480 crores.

Highlights:

- **Objective:** To position India as a global leader in technical textiles and increase the use of technical textiles in the domestic market.

- **Implementation:** For 4 years from 2020-21 to 2023-24

Components of the National Technical Textiles Mission:

- **Component -l (Research, Innovation and Development):**
  - ✓ Will focus on research and development at both, fiber level and application-based in geo, agro, medical, sports and mobile textiles and development of bio-degradable technical textiles.
    - ✓ Research activities will also focus on development of indigenous machinery and process equipment.

✓ Will have an outlay of ₹1,000 crores.

- **Component -II (Promotion and Market Development):**
  ✓ Will be for promotion and development of market for technical textiles.
  ✓ Will aim at average growth rate of 15-20% per annum taking the level of domestic market size to 40-50 Billion USD by the year 2024.

- **Component – III (Export Promotion):**
  ✓ Will focus on export promotion so that technical textile exports from the country reach from the ₹14,000 crore now to ₹20,000 crores by 2021-2022.
  ✓ Ensure 10% average growth every year till the Mission ends.
  ✓ An export promotion council for technical textiles will be set up.

- **Component- IV (Education, Training, Skill Development):**
  ✓ Will promote technical education at higher engineering and technology levels related to technical textiles and its application areas.

Significance of the Mission:

- The Mission will focus on usage of technical textiles in various flagship missions, including in strategic sectors.
- The use of technical textiles in agriculture, aquaculture, dairy, poultry, etc. Jal Jivan Mission; Swachch Bharat Mission; Ayushman Bharat will bring an overall improvement in cost economy, water and soil conservation, better agricultural productivity and higher income to farmers per acre of land holding in addition to promotion of manufacturing and exports activities in India.

- The use of geo-textiles in highways, railways and ports will result in robust infrastructure, reduced maintenance cost and higher life cycle of the infrastructure assets.

- Promotion of innovation amongst young engineers will be taken up by the Mission; along with creation of incubation centres and promotion of 'start-up' and Ventures'.

- The research output will be reposited with a 'Trust' with the Government for easy and assessable proliferation of the knowledge.

- A sub-component of the research will focus on development of bio degradable technical textiles materials, particularly for agro-textiles, geo-textiles and medical textiles.

- It will also develop suitable equipment for environmentally sustainable disposal of used technical textiles, with emphasis on safe disposal of medical and hygiene wastes.

- There is another important sub-component in the research activity aiming at development of indigenous machineries and process equipment for technical textiles, in order to promote 'Make in India' and enable competitiveness of the industry by way of reduced capital costs.

12. Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme

Why in News?

- The Union Cabinet has approved financial assistance to the Modified Electronics Manufacturing Clusters (EMC2.0) Scheme which would support setting up of both Electronics Manufacturing Clusters (EMCs) and Common Facility Centres (CFCs).

Highlights:

- The EMCs will aid the growth of the Electronics System Design and Manufacturing (ESDM) sector, help the development of the entrepreneurial ecosystem, drive innovation and catalyse the economic growth of the region by attracting investments in the sector.

- EMCs would be set up in geographical areas of certain minimum extent, preferably contiguous, where the focus is on development of basic infrastructure, amenities and other common facilities for the ESDM units.

- For the CFC, there should be a significant number of existing ESDM units located in the area and the focus is on upgrading common technical infrastructure and providing common facilities.

Significance:

- The Scheme will create a robust infrastructure base for the electronic industry to attract flow of investment in the ESDM sector and lead to greater employment opportunities. Following are the expected outputs/outcomes for the Scheme:
  - ✓ Availability of ready infrastructure and Plug & Play facility for attracting investment in electronics sector.
  - ✓ New investment in electronics sector
  - ✓ Jobs created by the manufacturing units;
  - ✓ Revenue in the form of taxes paid by the Manufacturing Units

13. Government Raises Excise Duty Cap on Fuel

Why in News?

- The government has raised the cap on special additional excise duty on petrol and diesel to Rs 18 and Rs 12 per litre, respectively, as per the amendments in the Finance Bill passed in the Parliament.

Highlights:

- This move which would help the government to raise excise duty on fuel further in future. The change in the cap will enable the government to raise duties on petrol and diesel by another Rs 8 per litre each.

- Every rupee hike in excise duty is expected to yield roughly Rs 13,000-14,000 crore annually. The slump in global crude oil prices enables the government to raise these duties substantially without immediately putting the burden on the consumer.

- But there is expected to be a demand slowdown for fuels with a nearly country wide lockdown in the wake of coronavirus. With airlines, railways, trucks and passenger cars going off the roads, petrol, diesel and ATF (aviation turbine fuel) consumption is expected to fall drastically.

- The excise duties on petrol and diesel include basic excise duty, special additional excise duty, and road and infrastructure cess, which is levied as additional excise duty.

- Government is increasing duties on petrol and diesel to raise revenues in view of a tight fiscal situation.

- Slump in global crude oil prices, alongside possibility of a global economic recession, has forced the government to look for avenues to raise revenues to support growth.

- With major companies going for production shut downs, industry players have suggested the government to boost fiscal stimulus in the wake of demand collapse triggered by the coronavirus.
- Saudi Arabia had triggered the crash in prices by announcing a sharp increase in oil production after Russia declined to reduce oil supply to contain a fall in oil prices due to declining demand in a meeting of petroleum exporting countries.

14. Economic Relief Measures to tackle Coronavirus Outbreak

Why in News?

- Finance Ministry has announced several measures aimed at alleviating the growing economic stress in the country in the wake of the disruption caused by the spread of the novel coronavirus SARS-CoV-2.

Highlights:

- Contrary to expectations, the Ministry did not announce any fiscal sops, and limited itself to providing extensions for a range of regulatory requirements.
- The regulatory relief applies to taxation, both direct and indirect, as well as everyday working norms for a variety of economic magnates such as exporters and importers, small and medium-sized firms, and individuals as well.
- The most important change relates to the regulatory forbearance for firms that are likely to face bankruptcies. Under the Insolvency and Bankruptcy Code (IBC), bankruptcy proceedings can be started against a firm that defaults on an amount of Rs 1 lakh or more, this threshold has now been raised to Rs 1 crore.

- This will immediately help micro, small and medium enterprises (MSMEs) which are expected to be among the worst hit due to the ongoing economic slowdown. By raising the threshold, the government has provided immediate reprieve to all such firms.

- The ministry also noted that if the situation demands, that is, if the economic distress continues or intensifies, the government would consider suspending Sections 7, 9, and 10 of the IBC for a full six months after April end.

- The government has increased the deadline for filing income-tax returns for 2018-19 has been relaxed and the penal interest rate has been reduced. On Goods and Services Tax compliance, too, there has been a similar relief.

- The Aadhaar and PAN linkage too has been pushed to June-end. Government has also extended the deadline for dispute resolution schemes on the direct tax (Vivaad se Vishwas Scheme) and indirect taxes (Sabka Vishwas Scheme) till 30th June.

- It has also provided relief to importers whose shipments are delayed or those who need extended quarantining facilities.

- In the fisheries sector, Sanitary Import Permits, which were to expire by April 15 have been extended for 3 more months.

- However, these measures target only the organised sector of the economy. About 90% of employment in India is in the informal or unorganised sector. Economic slowdown affects that sector the most, and is likely to result in massive unemployment and deprivation. None of these measures is targeted towards that Demographic.

15. Invest India Business Immunity Platform

Why in News?

- Invest India Business Immunity Platform launched to help businesses withstand COVID-19.

Highlights:

- It was launched by Invest India, India's national investment promotion & facilitation agency, under the Ministry of Commerce and Industry.

- The platform, hosted on the Invest India website, is designed as a comprehensive resource to help businesses and investors get real-time updates on India's active response to COVID-19.

- This dynamic and constantly updating platform keeps a regular track on developments with respect to the virus, provides latest information on various central and state government initiatives, gives access to special provisions, and answers and resolves queries through emails and on WhatsApp.

- The Business Immunity Platform (BIP) is the active platform for business issue redressal, operating 24/7, with a team of dedicated sector experts and responding to queries at the earliest.

- Invest India has also announced a partnership with SIDBI (Small Industries Development Bank of India) for responding and resolving queries for MSMEs.

- While COVID-19 continues to disrupt normal life, the impact of this crisis on businesses across the country is being continuously assessed.

- The portal also maps and highlights the response mechanism put in place by leading Indian companies such as sanitation of staff vehicles, placing orders in alternate markets, disabling biometric attendance systems, setting up of medical task force, requesting trainees to go home, business continuity plan, barring entry of visitors, suspension of air travel, usage of video-conferencing and tele-conferencing, developing online solutions and other unique initiatives.

16. Capital to Risk Weighted Assets Ratio (CRAR)

Why in News?

- The Cabinet Committee on Economic Affairs has given its approval for continuation of the process of recapitalization of Regional Rural Banks (RRBs) by providing minimum regulatory capital to RRBs which are unable to maintain minimum Capital to Risk weighted Assets Ratio (CRAR) of 9%, as per the regulatory norms prescribed by the RBI.

CRAR:

- CRAR also known as Capital Adequacy Ratio (CAR) is the ratio of a bank's capital to its risk.

- CRAR is decided by central banks and bank regulators to prevent commercial banks from taking excess leverage and becoming insolvent in the process.

- The Basel III norms stipulated a capital to risk-weighted assets of 8%.

- In India, scheduled commercial banks are required to maintain a CAR of 9% while Indian public sector banks are emphasized to maintain a CAR of 12% as per RBI norms.

- It is arrived at by dividing the capital of the bank with aggregated risk-weighted assets for credit risk, market risk, and operational risk.
- RBI tracks CRAR of a bank to ensure that the bank can absorb a reasonable amount of loss and complies with statutory Capital requirements.
- The higher the CRAR of a bank the better capitalized it is.

Why Recapitalize RRBs?

- RRBs are primarily catering to the credit and banking requirements of agriculture sector and rural areas with focus on small and marginal farmers, micro & small enterprises, rural artisans and weaker sections of the society.
- A financially stronger and robust RRB with improved CRAR will enable them to meet the credit requirement in the rural areas.
- As per RBI guidelines, the RRBs have to provide 75% of their total credit under PSL (Priority Sector Lending).
- In addition, RRBs also provide lending to micro/small enterprises and small entrepreneurs in rural areas.
- **With the recapitalization support to augment CRAR, RRBs would be able to continue their lending to these categories of borrowers under their PSL target, and thus, continue to Support Rural Livelihoods.**

17. Coal Capacity Pipeline Declines in India

Why in News?

- The latest report 'Boom and Bust 2020: Tracking the Global Coal Plant Pipeline' which is the fifth annual survey of the coal plant pipeline has been released recently. The report highlights that the capacity of coal power plants in the pre-construction phase fell by half from 2018 to 2019 in the country.
- Jointly released by the Centre for Research on Energy and Clean Air (CREA), Greenpeace International, the Sierra Club and Global Energy Monitor.

Highlights:

- The capacity of coal power plants which was 60.2GW in 2018, saw a sharp fall to 29.3GW last year.
- In India, capacity under construction and in pre-construction phase declined 80% from 311.1GW in 2015 to 66GW in 2019, with only 2.8GW newly proposed in 2019.

- The findings state that the biggest growth in construction took place in South Asia in 2019, with India starting construction of 8.8GW of new coal power capacity.
- Along with this, 8.1GW coal- based capacity was commissioned in the country last year.
- The new construction includes four coal plants —- Adani Godda, Patratu and Udangudi having 1.6GW each and Yadadri with 4GW.
- All the 8.8GW of new construction received substantial financing from the Power Finance Corporation or the Rural Electrification Corporation, both of which fall under the jurisdiction of the Ministry of Power and are set to merge this year.
- The report indicated that the private sector is exiting coal plant development in the country, the public sector is stepping in and footing the bill.

Concerns:

- The shrinking coal pipeline in India, forced by huge over-capacity, subdued demand for electricity, falling utilization factor, falling prices of renewable energy, drying investments, and increasing public resistance due to pollution gives hope for a future with reduced fossil footprint for the country.
- But, at the same time new capacity is being added to the grid, new projects are given clearances and infusion of public money into new projects by the government stresses on the environmental and economic crisis faced by the country.
- A strict policy against building or clearing new coal-based plants with rapid retirement of older units is urgently required.

1. Globally Endangered Species found in Chilika lake

Why in News?

- Researchers conducting a study in Odisha's Chilika Lake have found the presence of a viable, breeding population of a fishing cat and Eurasian otter in the brackish water lagoon.

Highlights:

- The project was a collaborative effort between The Fishing Cat Project, Chilika Development Authority, Wild Orissa, Mahavir Pakshi Suraksha Samity and Chilika Wildlife Division, Forest Department of Odisha.

Fishing Cat:

- It is a globally endangered species that is elusive and found in very few places in South and South-east Asia. Wild cat species usually hunt on ground but the fishing cat hunts in water.
- It has specialised features like partially webbed feet and water-resistant fur that helps it to thrive in wetlands. The flat-headed cat of south-east Asia is the only other feline that shares similar features.
- **IUCN: Endangered**

Eurasian Otter:

- Eurasian Otter is a semiaquatic mammal native to Eurasia but it is found in the waterways and coasts of Europe, many parts of Asia, and parts of northern Africa.
- The Eurasian otter has a diet mainly of fish, and is strongly territorial.
- **IUCN: Endangered**

Chilika Lake:

- Chilika Lake is a brackish water lake in the Orissa state on the east coast of India.
- It is Asia's largest brackish water lake. It is the largest wintering ground for migratory birds in the Indian subcontinent. The lake is home to a number of threatened species of plants and animals. The lake is an ecosystem with large fishery resources.
- The lagon hosts over 160 species of birds in the peak migratory season.
- Birds from as far as the Caspian Sea, Lake Baikal, Aral Sea and other remote parts of Russia, Kirghiz steppes of Mongolia, Central and southeast Asia, Ladakh and Himalayas migrate here.

2. Crop Diversification Programme (CDP)

Why in News?

- The Department of Agriculture is implementing a Crop Diversification Programme for replacing paddy crop with less water consuming alternative crops to save water and protect the soil in the state of Punjab.

CDP:

- It is a sub-scheme of Rashtriya Krishi Vikas Yojana (RKVY).
- It is being implemented in the Original Green Revolution States to divert the area of paddy crop to alternate crops and in tobacco-growing states to encourage tobacco farmers to shift to alternate crops/cropping system.
- Under CDP for replacing paddy crop, assistance is provided for four major interventions:
  - ✓ Alternate crop demonstrations
  - ✓ Farm mechanization & value addition
  - ✓ Site-specific activities
  - ✓ Contingency for awareness, training, monitoring, etc.
- However, for replacing tobacco crop, tobacco-growing states have been given the flexibility to take suitable activities/interventions for growing alternative agricultural/horticultural crops.

3. Plastic Eating Caterpillar

Why in News?

- A small waxworm could be useful in our fight against plastic waste, one of the main environmental problems of the Modern Era.

Highlights:

- Humans are addicted to plastic, a material that we can find almost everywhere but that is also very hard to get rid of. About eight million tons of it ends up in the oceans every year.
- Researchers from the UK and Spain discovered that a species of caterpillar was capable of tearing apart polyethylene, one of the most common types of plastic.
- The waxworm could digest it and then produce ethylene glycol as a by-product.
- Other organisms could also do this but not as fast, which made this inconspicuous creature Particularly Interesting.

- The discovery opened the door to a new way of dealing with plastic pollution, but more research was needed to understand the internal mechanism of the caterpillar.
- Another group of researchers isolated the bacteria in the stomach of the waxworm and fed them just with plastic for a full year.
- This helped the researchers to identify the microorganisms that are involved in the process of breaking down the plastic, which could lead to creating a technology to eliminate plastic permanently.
- The caterpillars represent an important breakthrough and help deal with plastics, especially those that are hard to recycle.

4. Polar vortex and India's weather

Why in News?

- Meteorologists have indicated that the frequent wet spell causing heavy rains in North India this season could be a result of record Arctic freeze.

Highlights:

- The Arctic sea ice cover this winter was at a 10-year high. For a long time, the Arctic ice cover was on a rapid decline due to global warming.

- The polar vortex or wind circulation is the major cause of the freeze in the Arctic region.
- The polar vortex is the area of low pressure and cold air that forms near the North or South Pole and is stronger in winter. The polar vortex lets the Arctic cold trapped in the polar region. A strong polar vortex supported by other global factors has caused at least 20 Western Disturbances in North India since January this year.
- The western disturbance is the low-pressure area over the surface causing changes in pressure, wind pattern, and temperature. This originates in the Mediterranean region which brings sudden rain to the north-western parts of the Indian sub-continent.
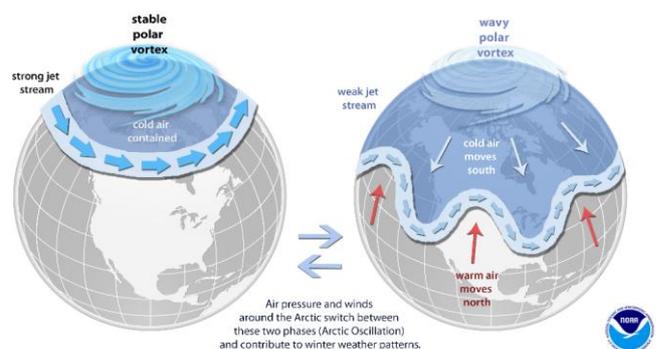
Polar vortex:

- A polar vortex is an upper-level low-pressure area lying near one of the Earth's poles. There are two polar vortices in the Earth's atmosphere, overlying the North and South Poles.

- Each polar vortex is a persistent, large-scale, low-pressure zone less than 1,000 kilometers (620 miles) in diameter, that rotates counter-clockwise at the North Pole and clockwise at the South Pole (called a cyclone in both cases), i.e., both polar vortices rotate eastward around the poles.

- As with other cyclones, their rotation is driven by the Coriolis effect. The bases of the two polar vortices are located in the middle and upper troposphere and extend into the stratosphere. Beneath that lies a large mass of cold, dense Arctic air.

- A polar vortex strengthens in the winter and weakens in the summer because of its dependence on the temperature difference between the equator and the poles.

5. White Giraffe

Why in News?

- Poachers have killed two extremely rare white giraffes in northeast Kenya, leaving just one such animal in the world.

Highlights:

- The white giraffe made headlines in 2017 after its discovery, with its unique white hide. It is white but not albino, because of a condition known as leucism.

- The white appearance of the giraffe is due to leucism, a genetic condition that causes skin cells to have no pigmentation.

- Unlike albinism, animals with leucism continue to produce dark pigment in their soft tissue, thus her eyes were dark in colour.

- The International Union for Conservation of Nature (IUCN) had classified giraffes as vulnerable in the Red List in December 2016, when it noted that their population had dropped by over 40 per cent since 1985. According to IUCN, the four principal factors that have led to a population decline among giraffes are habitat loss, civil unrest, poaching and ecological issues. According to the Hirola Conservation Programme, in Garissa County, the emergence of farms along the river Tana have blocked giraffe water points, because of which they have to force their way to the river through farms.

- In order to keep the giraffes away from the farms and to prevent them from destroying crops, farmers use snares and pitfall traps.

6. Smallest Dinosaur

Why in News?

- A group of scientists may have discovered the smallest dinosaur ever found.

Highlights:

- They found the fossilized skull of a dinosaur — the size of a modern hummingbird — trapped in a 99-million-year-old amber in northern Myanmar.
- The animal in question would have weighed 2 grams, claimed the scientists in a paper published in the Nature journal.
- The fossil represented the smallest dinosaur from the Mesozoic era — about 250 million to 65 million years ago — according to the group.
- The discovery suggests miniature body sizes in birds evolved earlier than previously recognised.
- This may provide insight into how dinosaurs evolved to be small and shed light on the lowest limit of vertebrate body size.
- The animal's skull was less than two centimeters long.
- It had several sharp teeth, which suggested it preyed on insects and other small invertebrates, scientists observed. For this reason, the new species has been given the scientific name of Oculudentavis khaungraae, derived from Latin for 'eye-teeth-bird'.
- Unlike other predators, its eyes were on the sides of its head, which meant the dinosaur had little or no binocular vision.
- It had limited access to light into the eye, which scientists said was evidence that it was active in well-lit, daytime environments.

7. Uranium Contamination in Ground Water

Why in News?

- There is a prevalence of Uranium concentration above 30 micro-gram per litre (World Health Organization (WHO) provisional guidelines) in some of the localized pockets of a few States/UTs in the country.

Highlights:

- A report brought out by Duke University, USA in association with the Central Ground Water Board and State Ground Water departments states that Andhra Pradesh, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, West Bengal and Jammu & Kashmir have localised occurrence of Uranium concentration.

- As per the Department of Atomic Energy, elevated uranium levels in drinking water may affect human health.

- Health studies carried out elsewhere in the world suggest that elevated uranium levels in drinking water may be associated with kidney toxicity.

- Further, several studies focusing on health effects have been carried out in Finland among people who use their drilled wells as sources of drinking water having uranium concentrations in the range 5.6 – 3410 ppb. However, no clear clinical symptoms have been observed among the exposed population.

- The Indian Standard IS 10500: 2012 for Drinking Water specification has specified the maximum acceptable limits for radioactive residues as alpha and beta emitters, values in excess of which render the water not suitable. These requirements take into account all radioactive elements including uranium. No individual radioactive elements have been specifically identified.

- Further, as per information provided by the Bureau of Indian Standard (BIS), they are working to incorporate maximum permissible limit of Uranium as 0.03 mg/l (as per WHO provisional guidelines) in all drinking water standards after following the due process.

8. GreenCo Rating System

Why in News?

- The Union Ministry of Railways has informed about the applications of Greenco Ratings on Workshops and Production Units of Indian Railways.

GreenCo Ratings:

- GreenCo Rating is the "first of its kind in the World" holistic framework that evaluates companies on the environmental friendliness of their activities using life cycle approach.

- Implementation of GreenCo rating provides leadership and guidance to companies on how to make products, services and operations greener.

- It is developed by Confederation of Indian Industry's (CII) Sohrabji Godrej Green Business Centre.

- It has been acknowledged in India's Intended Nationally Determined Contribution (INDC) document, submitted to UNFCCC in 2015.

- GreenCo rating is applicable to both manufacturing facilities and service sector units.

- The rating is implemented at unit or facility level. The unit or facility has to be in operation for a minimum period of 3 years. In case of new plants/ facilities minimum 2 years operation is required.

Significance:

- It helps the industrial units in identifying and implementing various possible measures in terms of energy conservation, material conservation, recycling, utilization of renewable energy, GHG reduction, water conservation, solid and liquid waste management, green cover etc.

9. Wild Berry of Assam

Why in News?

- A multi-utility wild berry, whose thorny plant the British had used to build a barrier through India in the 1870s, has a unknown wilder cousin in Assam, a new study has revealed.

Highlights:

- Unlike the abundant Carissa carandas, better known as karonda in Hindi, kalakkai in Tamil, koromcha in Bengali and karja tenga in Assamese, the Carissa kopilii is threatened by the very river it is named after.

- The Kopili hydroelectric project on the river and water turned acidic because of coal mining in Meghalaya upstream.

- The "sun-loving" plant is distributed sparsely, rooted in rocky crevices along the Kopili riverbed at altitudes ranging from 85-600 metres above sea level.

- Karja tenga has been used as a traditional herbal medicine for a number of ailments such as diarrhoea, anaemia, constipation, indigestion, skin infections and urinary disorders.

- The leaves have been used as fodder for silkworms while a paste of its pounded roots serves as a fly repellent.

- The Carissa carandas was also among several thorny plants the British had grown 140 years ago for a 1,100-mile barrier apparently to enforce taxes and stop the smuggling of salt.

- Carissa kopilii, yielding white flowers from August-October and fruits from November-January, should have all the medicinal and utilitarian properties of its better-known cousin.

10. Carissa carandas (the Great Hedge of India)

Why in News?

- Carissa carandas, a multi-utility wild berry, whose thorny plant the British had used to build a barrier through India in the 1870s, has a hitherto unknown wilder cousin in Assam, a new study has revealed.

Carissa Carandas:

- The Carissa carandas was also among several thorny plants the British had grown 140 years ago for a 1,100-mile barrier apparently to enforce taxes and stop the smuggling of salt.

- It has been used as a traditional herbal medicine for a number of ailments such as diarrhoea, anaemia, constipation, indigestion, skin infections and urinary disorders.

- The leaves have been used as fodder for silkworms while a paste of its pounded roots serves as a fly repellent.

- It is better known as karonda in Hindi, kalakkai in Tamil, koromcha in Bengali and karja tenga in Assamese, the Carissa kopilii is threatened by the very river it is named after — Kopili in central Assam.

- The "sun-loving" plant was distributed sparsely, rooted in rocky crevices along the Kopili riverbed at altitudes ranging from 85-600 metres above sea level.

11. Ozone layer healing

Why in News?

- The ozone layer above Antarctica has recovered so much, it's actually stopped many worrying changes in the Southern Hemisphere's atmosphere, according to a new study.

Highlights:

- A new study suggests the Montreal Protocol, the 1987 agreement to stop producing ozone depleting substances (ODSs), could be responsible for pausing, or even reversing, some troubling changes in air currents around the Southern Hemisphere.
- Before the turn of the century, ozone depletion had been driving the southern jet stream further south than usual. This ended up changing rainfall patterns, and potentially ocean currents as well.
- Using a range of models and computer simulations, researchers have now shown this pause in movement was not driven by natural shifts in winds alone.
- In Australia, for instance, changes to the jet stream have increased the risk of drought by pushing rain away from coastal areas.
- If the trend does reverse, those rains might return. While improvements in cutting back our reliance on ODSs have certainly allowed the ozone to recover somewhat, carbon dioxide levels continue to creep upwards and place all that progress at risk.
- Last year, the Antarctic ozone hole hit its smallest annual peak on record since 1982, but the problem isn't solved, and this record may have something to do with unusually mild temperatures in that layer of the atmosphere.
- The Montreal Protocol is proof that if we take global and immediate action we can help pause or even reverse some of the damage we've started. Yet even now, the steady rise in greenhouse gas emissions is a reminder that one such action is simply not enough.

12. Microbes Beneath Ocean Floor

Why in News?

- In a study, scientists have described how micro-organisms survive in rocks nestled thousands of feet beneath the ocean floor in the lower oceanic crust.

Highlights:

- Organisms seeking out an existence far beneath the sea floor live in a hostile environment. Very little resources find their way into the seabed through seawater and subsurface fluids, which circulate through fractures in the rock and carry inorganic and organic compounds.
- The discoveries were made as part of the International Ocean Discovery Program (IODP), which studies samples of rock and sediment taken from beneath the seafloor.

- Normally, it's to investigate the historic climate records preserved there, but in this case an international team of scientists found evidence of life.

- The first analysis of messenger RNA, the genetic material containing instructions for making different proteins, from this region, coupled with measurements of enzyme activities, microscopy, cultures and biomarker analyses, has provided evidence of a low biomass but diverse community of microbes that includes heterotrophs that obtain their carbon from other living (or dead) organisms.

- The researchers travelled to Atlantis Bank, an underwater ridge that cuts across the southern Indian Ocean.

- Tectonic activity there exposes the lower oceanic crust at the sea floor, providing convenient access to an otherwise largely inaccessible realm. By isolating messenger RNA and analysing the expression of genes, the researchers found evidence that micro-organisms under the ocean floor express genes for various survival strategies.

- Some microbes appeared to have the ability to store carbon in their cells for use in times of shortage. Others showed indications they could process nitrogen and sulphur to generate energy, produce Vitamin E and B12, recycle amino acids, and pluck out carbon from the hard-to-break-down compounds called polyaromatic hydrocarbons.

- This environment and lower oceanic crust are comprised largely of types of material called gabbro and peridotite, and these allow for some chemical reactions that were likely present on early Earth and also on other planets where water and volcanic rocks interact.

- The findings provide a complete picture of carbon cycling by illuminating biological activity deep below the oceans.

13. Protecting Peatlands can Help Attain Climate Goals

Why in News?

- Peatlands, which play a crucial role in regulating global climate by acting as carbon sinks, are facing degradation and need to be urgently monitored, according to a Food and Agriculture Organization (FAO) of the United Nations report released recently.

Highlights:

- Peatlands cover only three per cent of Earth's surface. However, their degradation due to drainage, fire, agricultural use and forestry can trigger release of the stored carbon in a few decades.

- The report highlights important case studies from Indonesia, the Democratic Republic of the Congo and Peru in their attempts to map and monitor peatlands.
- Peatlands contain 30 per cent of the world's soil carbon.
- When drained, these emit greenhouse gases, contributing up to one gigaton of emissions per year through oxidation, according to the report.

Mapping Peatlands:

- Peatlands are formed due to the accumulation of partially decomposed plant remains over thousands of years under conditions of water-logging.
- To prevent their further degradation, these areas should be urgently mapped and monitored.
- Peatland mapping tells us where the peat is and what condition it is in.
- Together, with conservation and restoration measures, mapping also helps in maintaining water regulation services (reduction of flood intensities) and biodiversity.
- For countries keen on reducing emissions, monitoring the ground water level of peatlands is vital, or else they can turn into carbon emission sources.
- Mapping methodologies include both ground and remotely-sensed input data.
- The monitoring exercise of Peatlands requires a mix of satellite and ground-based exercises.

Degraded Peatlands:
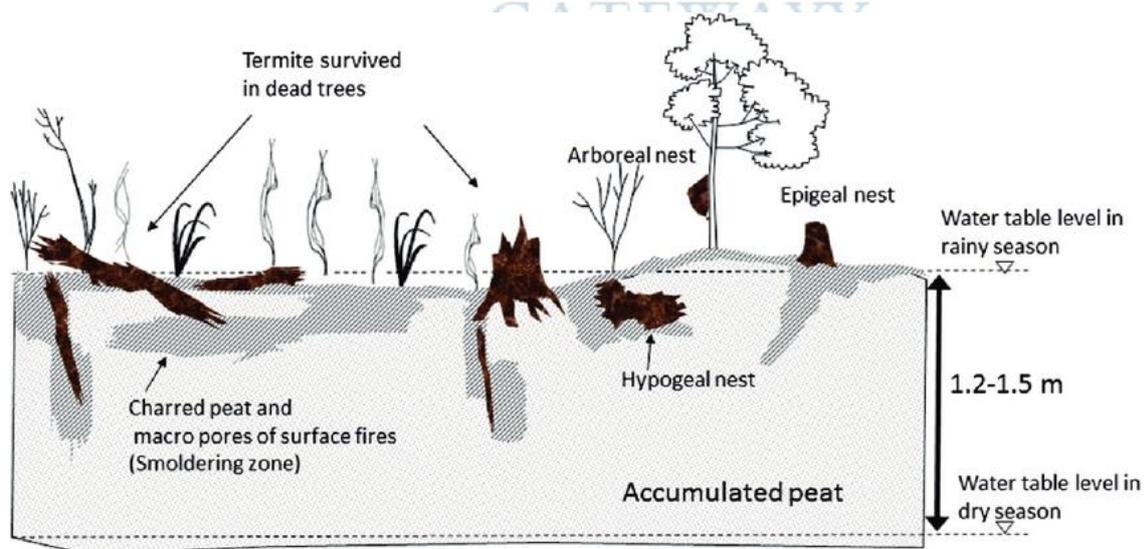
- Badly degraded peatlands that have been drained for a longer period of time, potentially burned and intensely managed can become hydrophobic.
- In this case, their re-wetting would not occur via natural means.

- Though peatlands in North America and the Russian Federation are still intact, about 25 per cent have degraded in Europe, Central and Southeast Asia, East Africa, southern America and the Amazon.

Restoration Measures:

- Indonesia, which has 40 per cent of all tropical peatlands, has taken corrective measures to alter drainage and deforestation since the 1980s.

- Their government created the Peat Ecosystem Restoration Information System (PRIMS), an online platform that provides information on the condition of peatlands and restoration efforts undertaken.

- Restoration work of highland peatlands was also conducted in the Hindukush Himalayan (HKH) region.

- This was done to ensure water security for cities in their watersheds.

- According to an ICIMOD report, the total peat area, excluding China, in the HKH region was 17,106 square kilometres in 2008. The degrading peat area was 8,236 square kilometres.

- In India, peatlands occupy roughly 320–1,000 square kilometres area.

Other benefits:

- Peatlands occur in different climate zones. While in tropical climate, they can occur in mangroves, in Arctic regions, peatlands are dominated by mosses. Some mangrove species are known to develop peatland soils under them.

- Besides climate mitigation, peatlands are important for archaeology, as they maintain pollen, seeds and human remains for a long time in their acidic and water-logged conditions.

- The vegetation growing on pristine peatlands provide different kinds of fibres for construction activities and handicrafts.

- Peatlands also provide fishing and hunting opportunities. It is also possible to practise paludiculture or wet agriculture on rewetted peatlands.

- According to the Greifswald Mire Centre Strategy 2018-2022, rewetting of peatlands reduces emissions and can play an important role in achieving the objective of the United Nations Framework Convention on Climate Change

1. India invited for US-Taliban talks in Qatar

Why in News?

- India has been invited to witness the ceremony to seal the peace deal between the U.S. and Taliban in Qatari capital Doha.

Highlights:

- The deal would allow for the withdrawal of US forces from Afghanistan. The US has lost over 2,400 soldiers in Afghanistan since late 2001.

- India has reiterated that a peace negotiation should be Afghan owned, Afghan led and Afghan controlled, and participation from the Afghan government in the ceremony will indicate that the U.S.-Taliban deal will ultimately take an inclusive turn.

- This issue is already part of the draft peace agreement and Kabul is expected to deal with this soon after the U.S.-Taliban deal is signed. It is understood that the same six-member delegation will represent the Government of President Ghani in the ceremony and begin the intra-Afghan negotiation thereafter. India has been a key stakeholder in the peace and reconciliation process in Afghanistan. Major powers such as the US, Russia and Iran have been reaching out to the Taliban as part of efforts to push the stalled Afghan peace process.

Peace Deal:

- The Peace deal will allow for the withdrawal of the US forces from Afghanistan.

- There are more than 12,000 US troops in Afghanistan. A report stated that 2,448 Americans have died in combat there since the invasion in October 2001.

- India has been invited by the Qatar government for the signing ceremony India has been a key stakeholder in the peace and reconciliation process in Afghanistan.

- This will be the first time India will officially attend an event involving the Taliban.

- Countries including the US, Russia, and Iran have been reaching out to the Taliban as part of efforts to push the stalled Afghan peace process. In November 2018, India had sent two former diplomats in non-official capacity to a conference on the Afghan peace process in Moscow, Russia. The peace deal conference was organized by Russia. It was attended by a high-level Taliban delegation, representatives of Afghanistan and from several other countries, including the US, Pakistan, and China. India has also been maintaining that care should be taken to ensure that any such process does not lead to any "ungoverned spaces" where terrorists and their proxies can relocate.

2. Oil Prices Crash Due to Price War

Why in News?

- Oil fell by the most since 1991 after Saudi Arabia started a price war with Russia by slashing its selling prices and pledging to unleash its pent-up supply onto a market, which is reeling from falling demand because of the coronavirus outbreak.

Highlights:

- Brent crude futures fell by as much as $14.25, or 31.5%, to $31.02 a barrel. That was the biggest percentage drop since January 17, 1991, at the start of the first Gulf War and the lowest since February 12, 2016.

- It was trading at $35.75 at 0114 GMT. Saudi Arabia, the world's biggest oil exporter, is attempting to punish Russia, the world's second-largest producer, for refusing production cuts proposed by the Organization of the Petroleum Exporting Countries (OPEC).

- OPEC and other producers supported the cuts to stabilise falling prices caused by the economic fallout from the coronavirus outbreak.

- Saudi Arabia, Russia, and other major producers last battled for market share like this between 2014 and 2016 to try to squeeze out production from the United States, now the world's biggest oil producer as flows from shale oil fields doubled the country's output during the last decade.

- China's efforts to curtail the coronavirus outbreak has disrupted the world's second-largest economy and curtailed shipments to the largest oil importer.

- The spread to other major economies such as Italy and South Korea and the burgeoning cases in the United States has increased the concerns that oil demand will slump this year.

OPEC:

- The Organization of the Petroleum Exporting Countries is an intergovernmental organization of 14 nations, founded on 14 September 1960 in Baghdad by the first five members (Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela), and headquartered since 1965 in Vienna, Austria.

- As of September 2018, the 14 member countries accounted for an estimated 44 percent of global oil production and 81.5 percent of the world's "proven" oil reserves.

- The stated mission of the organization is to "coordinate and unify the petroleum policies of its member countries and ensure the stabilization of oil markets.

- The current OPEC members are the following: Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of the Congo, Saudi Arabia (the de facto leader), the United Arab Emirates and Venezuela. Ecuador, Indonesia and Qatar are former members.

3. Sir Creek Dispute

Why in News?

- Former Pakistan Minister recalls plan for Sir Creek pact.

Sir Creek:
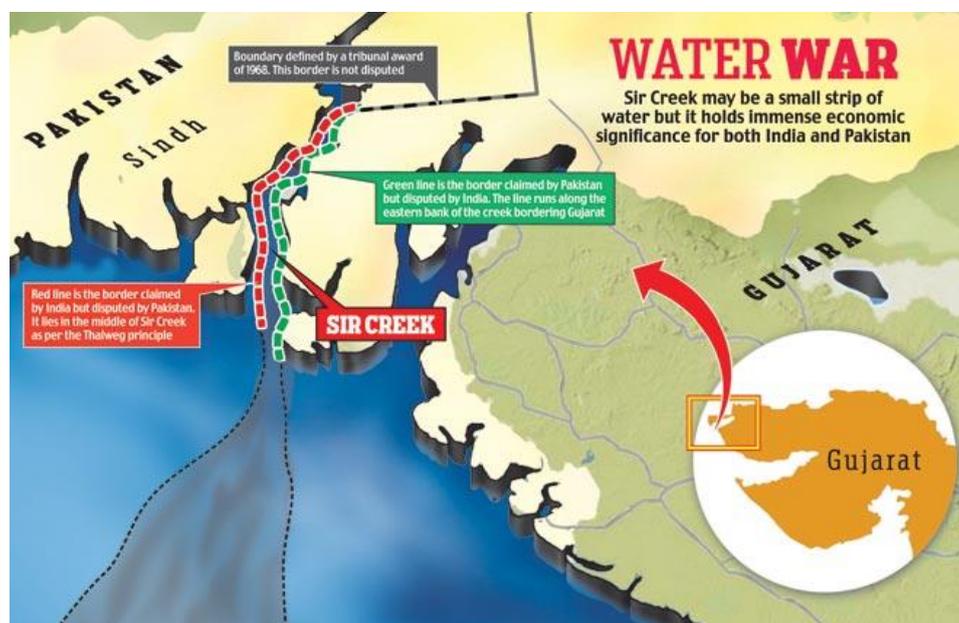
- Sir Creek is a 96-km strip of water disputed between India and Pakistan in the Rann of Kutch marshlands. Originally named Ban Ganga, Sir Creek is named after a British representative.
- The Creek opens up in the Arabian Sea and roughly divides the Kutch region of Gujarat from the Sindh Province of Pakistan.

Dispute:

- The dispute lies in the interpretation of the maritime boundary line between Kutch and Sindh. Before India's independence, the provincial region was a part of the Bombay Presidency of British India.
- But after India's independence in 1947, Sindh became a part of Pakistan while Kutch remained a part of India.

- Pakistan claims the entire creek as per paragraphs 9 and 10 of the Bombay Government Resolution of 1914 signed between then the Government of Sindh and Rao Maharaj of Kutch. The resolution, which demarcated the boundaries between the two territories, included the creek as part of Sindh, thus setting the boundary as the eastern flank of the creek popularly known as Green Line.
- But India claims that the boundary lies mid-channel as depicted in another map drawn in 1925, and implemented by the installation of mid-channel pillars back in 1924.

4. Saudi- Russia Tussle Tanks Oil Prices

Why in News?

- Saudi Arabia and the United Arab Emirates announced they would raise crude oil output by the equivalent of 3.6% of global supplies, adding 3.6 million barrels per day (bpd) to a market that is already massively oversupplied.

Highlights:

- This extraordinary flooding of the market will take place at a time when the coronavirus outbreak has severely impacted businesses and travel, and global demand is predicted to shrink for the first time in nearly 10 years.
- Brent crude was trading at around $36 on Wednesday, up from the week's low of about $31, but still some 45% lower since the beginning of 2020.
- Saudi Arabia and the UAE have taken a united stand in their ongoing battle with Moscow, which last week rejected a demand by Riyadh that the OPEC+ should cut production sharply to arrest crashing prices. In retaliation, the Gulf allies have decided to scrap all limits on production. The crippling of industrial production in China and other Asian countries such as South Korea has resulted in a sharp reduction in their import of crude oil. But Moscow argued that production should not be cut until the full impact of the COVID-19 outbreak is assessed in greater detail, and that any attempt to shore up prices would only benefit the costlier US shale industry, which has raised production to levels higher than both Saudi Arabia's and Russia's. The Saudi-Russian fight signals an end, at least temporarily, to the truce between these two large oil producers that had brought Moscow a seat at the OPEC high table, and held off a potential price war for more than three years now. However, the OPEC+ deal to control production also helped the American frackers.

- Analysts have said that in walking out of its marriage of convenience with OPEC and the Saudis now, Moscow may be trying to drive prices below the break-even point of shale oil production.

5. Indo-U.S. Science and Technology Forum

Why in News?

- Indian students will undertake a research internship at Viterbi School of Engineering, University of Southern California, LA, USA under the IUSSTF Program.

IUSSTF:

- IUSSTF is an acronym for the Indo-U.S. Science and Technology Forum.
- It is established under an agreement between the Governments of India and the USA in March 2000.
- It is an autonomous bilateral organization jointly funded by both the Governments that promote Sci-Tech, Engineering and Innovation through substantive interaction among government, academia and industry.
- The Department of Science & Technology, Governments of India and the U.S. Department of States are respective nodal departments.

Viterbi Program:

- The Viterbi Program of IUSSTF was developed between IUSSTF and the Viterbi School of Engineering, University of Southern California (USC).
- This program is a part of the Government's endeavour to encourage research and development amongst the bright young Indian minds to create long-term, sustainable, and vibrant linkages between India and the US.

7. INTERNAL SECURITY & DISASTER MANAGEMENT

1. ICGS Varad

Why in News?

- The Indian Coast Guard's Offshore Patrol Vessel ICGS Varad has been commissioned recently.

Highlights:

- The ship will be deployed extensively for the surveillance of India's Exclusive Economic Zone and to safeguard the maritime interests of the country.
- Key Features:
- The ship Varad will be based at Paradip in Odisha, under the operational control of the Coast Guard North Eastern Region.
- The 98-meter-long vessel has been designed and built by the L&T at its yard at Kattupalli near Chennai, as per the specifications of the Coast Guard.
- The ship is fitted with modern navigation and communication equipment, sensors and machinery.
- It is equipped with 30 mm and 12.7 mm guns.
- It has special on board features like the Integrated Bridge System, Platform Management System, Automated Power Management System and High Power External Fire-Fighting system.
- The vessel can be used for search and rescue, law enforcement and maritime patrol.
- The ship is also capable of carrying pollution response equipment for oil spill response at sea.

2. INCOIS - Warning Systems

Why in News?

- The Indian National Centre for Ocean Information Services (INCOIS), Hyderabad has launched Small Vessel Advisory and Forecast Services System (SVAS), Swell Surge Forecast System and Algal Bloom Information Service (ABIS) recently.

Small Vessel Advisory and Forecast Services System:

- Small Vessel Advisory and Forecast Services System (SVAS) has been launched to improve operations on the numerous small marine vessels, particularly fishing vessels that ply the coastal waters of India.

- It is an innovative impact-based advisory and forecast service system for small vessels operating in Indian coastal waters.

- The SVA system warns users about potential zones where vessel overturning can take place, ten days in advance.

- The advisories are valid for small vessels of beam width up to 7 m.

- This limit covers the entire range of beam widths of the fishing vessels used in all the 9 coastal states and union territories of India.

- The warning system is based on the 'Boat Safety Index' (BSI) derived from wave model forecast outputs such as significant wave height, wave steepness, directional spread and the rapid development of wind at sea which is boat-specific.

Swell Surge Forecast System:

- The Swell Surge Forecast System has been launched to provide swell surge forewarnings for the coastal population of India's vast shoreline, which experiences damages caused by the swell waves.
- They are flash-flood events that take place without any noticeable advance change in local winds or any other apparent signature in the coastal environment.
- Hence the local population remains totally unaware of these flooding events until they actually occur.
- These events have attracted attention especially after the 2004 Tsunami in the Indian Ocean, since most people mistake Kallakkadal to be Tsunamis.
- Tsunami and Kallakkadal/Swell surge are two different types of waves with entirely separate causes or mechanisms.

What are Swell Surges?

- Kallakkadal is a colloquial term used by Kerala fishermen to refer to the freaky flooding episodes and in 2012 UNESCO formally accepted this term for scientific use.
- During Kallakkadal events, the sea surges into the land and inundates vast areas.
- Such events are intermittent throughout the year.

Swells

- Waves that leave the fetch or generating area (could have left a storm at sea)
- Have long periods and wavelengths, fast celerities
- Energy transported a considerable distance
- At sea, swells are hardly noticeable

- Kallakkadal or Swell surge occurs along the Indian coast, particularly the west coast.
- Kallakkadal are caused by meteorological conditions in the Southern Ocean, south of 30°S.

- A study by INCOIS scientists has revealed that specific meteorological conditions in the Southern Indian Ocean support the generation of long period swells.
- These swells once generated, travel northward and reach the Indian coasts in 3-5 days' time, creating havoc in the coastal areas.
- The system will now predict Kallakkadal and warnings will be given to concerned authorities at least 2-3 days in advance, which will help the local authorities for contingency plans and to reduce damage.

Algal Bloom Information Service:

- The Algal Bloom Information Service (ABIS) has been launched to provide timely information on harmful algal blooms, which are detrimental to coastal fisheries and also tend to induce respiratory problems within the coastal population from time to time.
- The increasing frequency of algal blooms is a major concern due to its ill effects on fishery, marine life and water quality.
- INCOIS has developed a service for "Detection and Monitoring of Bloom in the Indian Seas".
- The target users are fishermen, marine fishery resource managers, researchers, ecologists and environmentalists.
- The service also complements INCOIS' marine fishing advisories i.e. Potential Fishing Zone advisories.
- INCOIS-ABIS will provide near-real time information on spatio-temporal occurrence and spread of phytoplankton blooms over the North Indian Ocean.
- Accordingly, relevant data retrieved from satellites i.e. Sea Surface Temperature, chlorophyll-a, Algal Bloom Index – chlorophyll, rolling chlorophyll anomaly, rolling sea surface temperature anomaly, phytoplankton class/species, phytoplankton size class and a composite image delineating bloom and non-bloom regions will be disseminated daily through ABIS.
- **In addition, four regions have been identified as bloom hotspots:**
  1. North Eastern Arabian Sea
  2. coastal waters off Kerala
  3. Gulf of Mannar, Tamil Nadu
  4. coastal waters of Gopalpur, Odisha

Indian National Centre for Ocean Information Services:

- Indian National Centre for Ocean Information Services (INCOIS) provides a number of free services for users in the marine realm.
- The institute is an autonomous organisation under the Ministry of Earth Sciences.
- INCOIS prioritises requests for specific services from its diverse user community that ranges right from fishermen to offshore oil exploration industries.

3. Radioactive Dumping in Fukushima

Why in News?

- The nuclear disaster at Fukushima sent an unprecedented amount of radiation into the Pacific. But, before then, atomic bomb tests and radioactive waste were contaminating the sea, the effects are still being felt today.

Highlights:

- Exactly how the water should be dealt with has become highly controversial in Japan, not least because the nuclear disaster caused extreme contamination off the coast of Fukushima.
- Almost 1.2 million liters (320,000 gallons) of radioactive water from the Fukushima nuclear power plant is to be released into the ocean. The contaminated water has since been used to cool the destroyed reactor blocks to prevent further nuclear meltdowns.
- It is currently being stored in large tanks, but those are expected to be full by 2022. Radiation levels in the sea off Fukushima were millions of times higher than the government's limit of 100 becquerels.
- And still today, radioactive substances can be detected off the coast of Japan and in other parts of the Pacific. The research found that even the smallest possible dose, a photon passing through a cell nucleus, carries a cancer risk. Although this risk is extremely small, it is still a risk. Over the past few decades, more than 250 nuclear weapons tests were carried out on the high seas. Most of them (193) were conducted by France in French Polynesia, and by the US (42), primarily in the Marshall Islands and the Central Pacific.
- But the ocean wasn't just being used as a training ground for nuclear war. Until the early 1990s, it was also a gigantic dump for radioactive waste from nuclear power plants. From 1946 to 1993, more than 200,000 tons of waste, some of it highly radioactive, was dumped in the world's oceans, mainly in metal drums.

- The US had dropped more than 90,000 barrels and at least 190,000 cubic meters of radioactive waste in the North Atlantic and Pacific.

- Other countries including Belgium, France, Switzerland and the Netherlands also disposed of tons of radioactive waste in the North Atlantic in the 1960s, 70s and 80s. The long-term consequences are clear.

- The radiation will be "absorbed by the marine animals surrounding it. They will eventually end up caught in fishing nets, and come back to our plates.

4. Contact Tracing

Why in News?

- Contact tracing is the process of identifying, assessing, and managing people who have been exposed to a disease to prevent transmission.

ICMR Guidelines:

- As per Indian Council of Medical Research guidelines, which are also directions that have sound public health sense behind them, people who may have been exposed to the virus are to be followed for 28 days from the date of the probable last exposure/arrival from affected countries.

- Any person who has had contact with the index patient under investigation/treatment for suspected, probable or confirmed case of SARS-COV-2, should be monitored for the appearance of symptoms.

Who is a Contact?

- Anyone who provided care for the suspect or confirmed case, including a health care worker (including those involved in cleaning, waste management, laboratory technicians, doctors) or family member, or anyone who had close physical contact; anyone who stayed at the same place (lived with, or visited) while the index patient was symptomatic.

What is contact tracing?

Contact tracing is finding everyone who has come in direct contact with a sick Ebola patient. Contacts are watched for signs of illness for 21 days from the last day they came in contact with the Ebola patient.

Contact tracing can stop the Ebola outbreak in its tracks.

Ebola patient
Isolate and provide care

Ask about contacts

Repeat cycle until there are no new contacts or with symptoms

If contact shows symptoms, isolate, test and provide care, ask about contacts

If contact shows no symptoms after 21 days, contact not at risk of developing Ebola

Missed contact may spread Ebola to new contacts
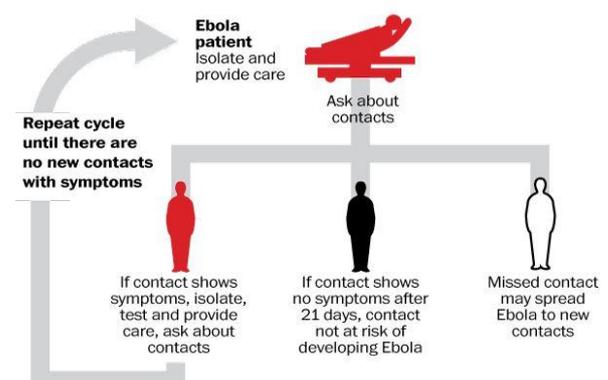
Source: Centers for Disease Control and Prevention   The Washington Post

- If symptoms appear within the first 28 days following the contact, the individual should be considered a 'probable' case and reported through the Integrated Diseases Surveillance Programme network to the National Centre for Disease Control.

Tracing Contacts:

- As soon as the single event (confirmed SARS-CoV-2) is detected, contact tracing must be aggressively implemented, and preferably to be completed within 48 hours.
- The contact tracing shall preferably be done by visiting the local residence of the contact(s) by a member of the health services team.
- On meeting the 'contact person', the visiting health worker should explain the purpose of contact tracing and collect data in a prescribed format.
- It is important to identify the social networks of the first patient and travel history during the 28 days after the onset of illness.
- Contacts should be traced and monitored for at least 28 days after the last exposure to the case patient for evidence of COVID-19 symptoms to emerge.

Symptomatic Contacts:

- Persons who have fever and cough and a history of contact with a confirmed case within the last 28 days should be referred for isolation for strict infection control.
- Samples must be collected and sent to the designated laboratory for testing, and appropriate medical management must begin.
- If contacts show symptoms, they may be isolated at a health care facility or at home until the results come in.
- Once confirmed as positive for SARS-CoV-2, they must be shifted to a proper health facility.

5. Undetected Cases Drive Spread in Community

Why in News?

- Eighty-six percent of people in China who were infected with novel coronavirus (SARS-CoV-2) were not tested in the two-week period before travel restrictions came into force on January 23 in Wuhan and other cities. And these undetected cases contributed to the majority of virus spread in the community, according to a study.

Highlights:

- The researchers used a computer model that draws on observations of reported infection and spread within China in conjunction with mobility data from January 10-23 and January 24-February 8.

- People who experienced mild, limited or no symptoms were not detected but spread the virus anyway.

- About half as infectious per person as a documented case who has more severe symptoms and maybe shedding more.

- Even though the undetected cases are only 55% contagious compared with those who exhibit severe symptoms and are detected, due to their greater numbers, they facilitated the rapid spread of the virus throughout mainland China. The undetected cases were the source of infection for 79% of documented cases.

- The undocumented infections which tend to be milder are distributing the virus broadly. They're contributing essentially to what is called self transmission of the virus because it's really undetected and it's flying below the radar.

- The modelling study suggests that a "radical increase" in identifying and isolating people who have not been tested yet would be needed to fully control the spread of the virus.

- The paper says that steps taken by many individuals and governments to restrict travel, shut down schools, prevent large gatherings, isolation of suspected cases, and the use of face mask and regular handwashing could have helped slow down the spread of the virus. And some countries have also started community testing.

- The authors say that while travel restrictions and other control measures could have reduced the spread of the virus in the community, the study does not provide evidence that such control measures would be sufficient to end the spread locally and prevent a rebound once travel and other restrictions are removed or relaxed.

- The paper concludes by saying that there are already four coronavirus strains that are circulating in the human population. And if the novel coronavirus follows the pattern of H1N1, then it would spread globally and become the fifth coronavirus to become endemic in the human population.

6. Quarantine Works Better than Airport Screening

Why in News?

- The Indian Council of Medical Research (ICMR) published research that compares the effectiveness and feasibility of two approaches, attempting to contain an outbreak at the border, and quarantining symptomatic cases within the country.

Highlights:

- The research makes a case for post-travel tracking rather than border containment.
- It uses mathematical modelling to show that spending resources on quarantining symptomatic cases can achieve a meaningful impact on the disease burden rather than attempting to achieve infeasible levels of containment at the borders.
- It also accounts for the inevitability that an outburst of cases would make lab confirmations impractical. Therefore, the paper proposes "symptomatic surveillance" to be included with quarantine measures.
- The government has focused on random sampling of patients with severe symptoms and quarantining positive cases.
- In the initial weeks of rising cases in India, asymptomatic travellers were not tested. If India screened all symptomatic airport arrivals from China, the epidemic would occur in 45 to 47.7 days.
- If all asymptomatic arrivals from China were screened, India would need to identify at least 75% of asymptomatic infected arrivals in order to achieve an "appreciable" delay in the outbreak.
- If 90% were identified, the delay would be 20 days. There is no accurate, rapid test to achieve the required detection levels, the paper notes, citing other studies to show that thermal screening can miss at least 46% of infections.
- The only way to achieve the needed detection levels, in fact, may be isolation of all arrivals from the specified airports.
- The researchers built their model with two scenarios. The optimistic scenario assumes that each infected person transmits the virus to 1.5 other people (known as R0 or reproduction number) and that asymptomatic infections do not infect others.
- The pessimistic scenario assumes each infection transmits to four other people, and that asymptomatic cases are half as infectious as symptomatic cases.

- The models show that once community transmission occurs, the epidemic's peak and duration can be greatly affected by quarantining symptomatic cases, but only in the optimistic scenario.
- The paper's hypothetical model found that quarantining 50% of symptomatic cases within three days of their symptoms would reduce overall cases by 62% and the peak number of cases by 89% in an optimistic scenario.
- The model assumes that cases are only coming from certain regions in China, which is a major drawback. We now know that many cases in India have actually come from the Middle East and the UK.

7. Arunachal Tribes Revive Lockdown Rituals

Why in News?

- A tribal lockdown ritual has staged a comeback in Arunachal Pradesh, the State geographically closest to China's Hubei province where the COVID-19 outbreak began.

Highlights:

- The border State's West Siang district ceremonially entered the Arr-Rinam phase at the stroke of 5 p.m. on Thursday.
- Arr-Rinam is the Galo equivalent of lockdown imposed by consensus for 48 hours whenever an epidemic strike. The Galos, one of the 26 major tribes of Arunachal Pradesh, dominate West Siang district.
- Arr-Rinam, which follows the Ali-Ternam ritual to ward off an epidemic, has been a part of their culture for a long time.
- Ali-Ternam, Ali means epidemic and Ternam forestall, and Arr-Rinam were last performed almost four decades ago when a water-borne disease had affected many members of the community. They have been performing these rituals periodically for livestock, primarily the semi-wild mithun, that are prone to contagious diseases. But this is for the first time in 30-40 years that they have performed the rituals for the safety of humans. The Adi community inhabiting East Siang and Lower Dibang Valley districts too performed a similar ritual called Motor that they believe lets shamans with legendary powers to locate wild herbs to combat an epidemic.
- In districts such as Papum Pare and East Kameng, the dominant Nyishi community observed Arrue involving self-quarantine.

8. Cantonment Boards Gear up to COVID-19 Challenge

Why in News?

- Sixty-two Cantonment Boards spread over 19 States/Union Territories, across the country, with a population of approx. 21 lakh (including military and civil) have geared up to the challenge posed by Coronavirus (COVID-19) pandemic.

Highlights:

- Instructions have been issued to all the Cantonment Boards to identify beds in hospitals/health centres and guest houses for any eventuality.
- Presidents and Chief Executive Officers of the Cantonment Boards are in constant touch with civilian authorities in their respective areas and providing required assistance whenever needed.
- All the advisories issued by Ministry of Health and Family Welfare are being strictly adhered to by all the Cantonment Boards.
- All the Cantonment offices buildings, residential areas, school premises, libraries, parks and markets are being sanitised regularly.
- Task forces have been set up consisting of office staff to ensure supply of essential commodities, food items, etc, especially for poor people residing in Cantonment areas.

Cantonment Board:

- A cantonment board is a civic administration body in India under control of the Ministry of Defence.
- The overall municipal administration of the Cantonment areas comes under Cantonment Boards which are democratic bodies.
- The Cantonment areas were and are primarily meant to accommodate the military population and their installations.
- Cantonments are different from the Military Stations in that the Military Stations are purely meant for the use and accommodation of the armed forces and these are established under an executive order whereas the Cantonments are areas which comprise of both military and civil population.

Members:

- The board comprises elected members besides ex-officio and nominated members as per the Cantonments Act, 2006.

- The term of office of a member of a board is five years.
- A cantonment board consists of eight elected members, three nominated military members, three ex-officio members (station commander, garrison engineer and senior executive medical officer), and one representative of the district magistrate.

Categories:

- Cantonments are divided into four categories, namely:
    1. Category I – population exceeds fifty thousand.
    2. Category II – population exceeds ten thousand, but does not exceed fifty thousand.
    3. Category III – population exceeds two thousand five hundred, but does not exceed ten thousand.
    4. Category IV – population does not exceed Two Thousand Five Hundred.

9. Can COVID-19 Relapse in Patients?

Why in News?

- In the last few days, there have been reports of recovered COVID-19 patients testing positive a second time. Since the exact behaviour of the novel coronavirus is still being studied, immunity against it is not fully understood.

Highlights:

- Previous coronavirus outbreaks have been inconsistent: a study on the coronavirus that caused MERS revealed that patients are unlikely to get re-infected within a short duration of the original infection; but, after the SARS outbreak, cases of relapse that were reported.
- Various factors can cause relapse in patients recovered from COVID-19. SARS-CoV-2, the virus that causes COVID-19, is like viruses that cause any other flu. There is always a probability of mutation as in the case of influenza viruses.
- The mutation, theoretically, can make an individual vulnerable to reacquire the COVID-19 infection. Patients who test positive for COVID-19 develop protective antibodies. Theoretically, there can be a relapse even in patients who have antibodies.
- At this stage, it is not fully understood as to how the long the antibodies provide protection against the viral infection.
- Also, in the absence of any vaccination, it is not known whether the immunity acquired by the persons is permanent. Another scenario that can lead to relapse is when immunity is compromised, if the patients have underlying conditions and if they are dependent on immunosuppression drugs.

- Experts also have pointed out that a "false negative" RTPCR test, the RNA test being conducted to diagnose COVID-19 infection, can lead to a patient testing positive a second time after testing negative in between. There have reports from Spain about imported RNA test kits giving inaccurate results.

10. Rapid test' to Identify COVID-19 Exposure

Why in News?

- To tackle suspicions of whether the novel coronavirus has spread into the community and if not prevent such a scenario, the Kerala government has announced 'rapid tests' that will ensure speedy results within half an hour.

Highlights:

- Over the last five days, Kerala's health department reported 93 positive cases of novel coronavirus, taking the total number of infected to 202 since February and heightening fears of community transmission of the virus in the state.

- The government has received approval of the Indian Council of Medical Research (ICMR) in this regard. The health department, in a statement released late Sunday, said the testing will be done using kits approved by ICMR and National Institute of Virology, Pune.

- A rapid test is conducted to determine whether there has been any kind of recent viral infection in a person's body. When a pathogen enters a human body, specific antibodies are released as a response to the virus. A rapid test can detect the presence of such antibodies in blood, serum or plasma samples quickly, indicating a viral infection. Rapid testing is conducted usually to check for community transmission of a virus during an epidemic. Even though a rapid test can be extremely helpful to check for community transmission during a global pandemic such as this, it is not a confirmatory test for SARS-CoV-2 that causes the coronavirus infection. Positive test indicates exposure to SARS-CoV-2. Negative test does not rule out Covid-19 infection. The person still has to be subjected to the polymerase chain reaction (PCR) test for confirmation of the SARS-CoV-2 virus. A rapid test comes positive after 7-10 days of viral infection and remains positive for several weeks after that. Those with a history of recent foreign travel, people who may have had contact with foreign returnees, health workers who maintain close contact with Covid-19 patients, residents of a region reporting higher-than-usual cases of respiratory illness and those who have recovered from such respiratory illnesses can undergo rapid tests.