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INDEX

1. INDIAN SOCIETY & POLITY

1. Rajya Sabha Elections	04
2. Pokhran Potteries	06
3. Section 309 IPC	07

2. GOVERNANCE

1. Delimitation Commission	09
2. National Numbering Plan	10
3. Data Security Guidelines	11
4. CHAMPIONS Platform to empower MSMEs	12
5. Pradhan Mantri Svanidhi Scheme	13
6. Pharmacopoeia Commission for Indian Medicine & Homoeopathy	14
7. TULIP: An Internship Program with ULBs across the country	15
8. International Yoga Day	16
9. Per Drop More Crop – PMKSY	17
10. NIRF ranking 2020 for Higher Educational Institutions	18
11. Jeevan Pramaan for Pensioners	20
12. Sex Test Rules	21
13. Pradhan Mantri Bhartiya Janaushadhi Kendras	23
14. Khelo India State Centres of Excellence (KISCE)	23
15. DBT – AMTZ Mobile Diagnostic Unit	24
16. YUKTI 2.0 platform for Higher Education Institutes	25
17. Extension of the Commission constituted under Article 340	26
18. Animal Husbandry Infrastructure Development Fund	27
19. Nasha Mukta Bharat: Annual Action Plan	28

3. SCIENCE & TECHNOLOGY

1. National AI Portal of India	29
2. Ongoing Sixth Mass Extinction	30
3. Arsenicum Album 30	30
4. NCVTC to develop host-directed antivirals for COVID-19	31
5. LIDAR Technology	32
6. Electrolytic Splitting of Water	33

7. Covid has exposed the limitations of Machine Learning	34
8. Flood Warning System for Mumbai – IFLOWS	37
9. Scientists grow human embryo using stem cells	39
10. Global Partnership on Artificial Intelligence (GPAI)	39
11. COVID-19 may Trigger New Diabetes	40
12. Annular Eclipse of the Sun	41
13. Dexamethasone	43
14. Extreme Helium Stars	44
15. Sickle Cell Disease	45
16. Foldscope	46
17. India now faces threat of Chinese Cyberattacks	47
18. Gaganyaan will not be affected by COVID Pandemic	49
19. Genes that aid and stem spread of Sars-CoV-2	50

4. ECONOMY

1. Non-profit organisations can be listed on Social Stock Exchanges	52
2. Electronics Incentive Schemes	54
3. Barrier-free trade in Agriculture Produce	55
4. India's rising forex reserves amid Covid-19	56
5. Reverse migration and associated Problems	58
6. Bonded Labour	60
7. Payments Infrastructure Development Fund (PIDF)	61
8. Corona bonds	62
9. Farmer Producer Organizations	63
10. Reasons for increase in India's FOREX Reserves	64
11. LIC IPO	65
12. Neera & Palmgur	67
13. National Institute of Public Finance and Policy	67
14. Financing for Compressed Bio-Gas plants to be brought under PSL	68
15. End to End Paperless Exports under Turant Customs	70
16. Credit Guarantee Scheme for Sub-ordinate Debt (CGSSD)	71
17. Product Application and Development Centre (PADC)	71
18. National Productivity Council	72

5. GEOGRAPHY & ENVIRONMENT

1. Amery Ice Shelf	74
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2. Speeding up Clean Energy Transition	76
3. Poaching Doubled during COVID-19 Lockdown	76
4. Challenger Deep	78
5. Melting glaciers cool Southern Ocean	79
6. Hilsa Fish	80
7. Decarbonising Transport in India” Project	81
8. Collaboration to develop Green Energy Solutions	82
9. Role of ancient algae in building a healthy Global Marine Ecosystem	83
10. Paleoclimatic history of Indus River	85
11. Jungle Fowl	86
12. Last Glacial Maximum	86

6. INTERNATIONAL RELATIONS

1. Trump Proposes Extension of G7 Group	88
2. U.K. moots ‘5G club’ to keep out Huawei	89
3. Comparing India, China outreach in Africa	90
4. Multilateralism to shore up Indo-Pacific	93
5. India to boost infrastructure in areas along China Border	95
6. Philippines’ U-turn on U.S. Pact	97
7. Barrier-free trade in Agriculture Produce	98
8. U.S. religious freedom report takes note of CAA, NRC, J&K status	99
9. Communication stops between North and South Korea	102
10. US sanctions against International Criminal Court	103
11. Strategic importance of Ladakh to India and China	104
12. US Accused Air India of Unfair Practices	105
13. UN Arms Trade Treaty	106
14. ASEAN states warn of S. China Sea Tensions	107
15. International Day Against Drug Abuse and Illicit Trafficking	109

7. INTERNAL SECURITY & DISASTER MANAGEMENT

1. THAAD Defence Systems	111
2. Malabar Naval Exercise to include Australia	112
3. World Day to Combat Desertification and Drought	113
4. INS Airavat	114

1. INDIAN SOCIETY & POLITY

1. Rajya Sabha Elections

Why in News?

- Another round of Rajya Sabha elections has been completed. There are several features that distinguish elections to the Council of States, or the Upper House of Parliament, from the general elections.

Rajya Sabha Polls:

- A third of MPs in the Rajya Sabha (which is a permanent House and is not subject to dissolution), from each State, retire once in two years and polls are held to fill up the vacancies.
- Only elected members of the State Legislative Assemblies can vote in a Rajya Sabha election.
- The legislators send a batch of new members to the Upper House every two years for a six-year term.
- In addition, vacancies that arise due to resignation, death or disqualification are filled up through by-polls after which those elected serve out the remainder of their predecessors' term.

Composition of Rajya Sabha

- A bloc of MPs belonging to one or more parties can elect a member of their choice if they have the requisite numbers.
- This is to avoid the principle of majority, which would mean that only candidates put up by ruling parties in the respective States will be elected.
- The Delhi and Puducherry Assemblies elect members to the Rajya Sabha to represent the two UTs.

What is the Election Process?

- Polling for a Rajya Sabha election will be held only if the number of candidates exceeds the number of vacancies.
- Since the strength of each party in the Assembly is known, it is not difficult to estimate the number of seats a party would win in the Rajya Sabha poll.
- In many states, parties avoid a contest by fielding candidates only in respect to their strength. Where an extra candidate enters the fray, voting becomes necessary.
- Candidates fielded by political parties have to be proposed by at least 10 members of the Assembly or 10% of the party's strength in the House, whichever is less.

- For independents, there should be 10 proposers, all of whom should be members of the Assembly.

Voting Procedure:

- Voting is by single transferable vote, as the election is held on the principle of proportional representation.
- A single transferable vote means electors can vote for any number of candidates in order of their preference.
- A candidate requires a specified number of first preference votes to win. Each first choice vote has a value of 100 in the first round.
- To qualify, a candidate needs one point more than the quotient obtained by dividing the total value of the number of seats for which elections are taking place plus one.
- Example: If there are four seats and 180 MLAs voting, the qualifying number will be $180/5 = 36$ votes or value of 3,600.

Why do not the Rajya Sabha polls have a Secret Ballot?

- The Rajya Sabha polls have a system of the open ballot, but it is a limited form of openness.
- As a measure to check rampant cross-voting, which was taken to mean that the vote had been purchased by corrupt means.
- There is a system of each party MLA showing his or her marked ballots to the party's authorised agent (called Whip), before they are put into the ballot box.
- Showing a marked ballot to anyone other than one's own party's authorised agent will render the vote invalid. Not showing the ballot to the authorised agent will also mean that the vote cannot be counted.
- And independent candidates are barred from showing their ballots to anyone.

Is there any NOTA Option in Voting?

- The ECI issued two circulars, on January 24, 2014, and November 12, 2015, giving Rajya Sabha members the option to press the NOTA button in the Upper House polls.
- However, in 2018, the Supreme Court struck down the provision, holding that the 'none of the above' option is only for general elections.
- It cannot be applied to indirect elections based on proportional representation.

Does cross-voting Attract Disqualification?

- The Supreme Court, while declining to interfere with the open ballot system, ruled that not voting for the party candidate will not attract disqualification under the anti-defection law.

- As voters, MLAs retain their freedom to vote for a candidate of their choice.
- However, the Court observed that since the party would know who voted against its own candidate, it is free to take disciplinary action against the legislator concerned.

Can a Legislator Vote without taking oath as a Member of the Assembly?

- While taking oath as a member is for anyone to function as a legislator, the Supreme Court has ruled that a member can vote in a Rajya Sabha election even before taking oath as a legislator.
- It ruled that voting at the Rajya Sabha polls, being a non-legislative activity, can be performed without taking the oath.
- A person becomes a member as soon as the list of elected members is notified by the ECI, it said.
- Further, a member can also propose a candidate before taking the oath.

2. Pokhran Potteries

Why in News?

- KVIC starts reviving ancient glory of Pokhran potteries.

Highlights:

- The Khadi and Village Industries Commission (KVIC) distributed 80 electric potter wheels to 80 potter families in Pokhran which has a rich heritage in terracotta products.
- Pokhran, in Jaisalmer district of Rajasthan, has over 300 potters' families that have been engaged with pottery for several decades, but potters had started looking for other avenues due to heavy drudgery in the work and no market support.
- Apart from the electric wheels, the KVIC also distributed 8 blunger machines, used for mixing the clay which can produce 800 kg clay in just 8 hours. Manually it takes 5 days to prepare 800 kg mud for pottery making.
- The 80 potters were also given 15-days' training to help them come up with exquisite pottery.

Rajasthan Potteries:

- Rajasthan is famous for terracotta items. Diverse forms of pottery are made in different regions of Rajasthan.
- Alwar is known for producing paper-thin Kagazi pottery, while Pokhran is renowned for white and red clay articles with geometric designs. Bikaner is home to painted pottery, tinted with lac colours. Jaisalmer is famous for stoneware pottery.

- Rajasthan is also known for its Blue Pottery.
- Turko-Persian in origin, the art of blue pottery is said to have flourished in Jaipur under the 19th century ruler Maharaja Ram Singh II.
- The special feature of blue pottery is that, unlike others, it is made of ground quartz stone and clay is not used at all. The traditionally used colours are blue (extracted from oxide of cobalt), green (from the oxides of copper) and white.
- Some pottery is semi translucent and in addition to the traditional colours, other combinations have now been evolved, such as canary yellow, dark blue and brown.
- The conventional designs are floral or arabesque patterns, sometimes with figures of Animals.

3. Section 309 IPC

Why in News?

- After the suicide of a popular movie star, the debate has moved towards abolishing Section 309 of IPC, one of the most archaic laws that punishes attempt to commit suicide.
- Contrary to popular perception that it has been repealed, Section 309 IPC continues to exist in the statute book and is often misused.

Highlights:

- The law, brought in by the British in the 19th century, reflected the thinking of the time, when killing or attempting to kill oneself was considered a crime against the state, as well as against religion. Anyone who survives an attempted suicide can be booked under Section 309 IPC, which deals with “Attempt to commit suicide”.
- The section reads: “Whoever attempts to commit suicide and does any act towards the commission of such offence, shall be punished with simple imprisonment for a term which may extend to one year (or with fine, or with both)”.
- The Mental Healthcare Act (MHCA), 2017, which came into force in July 2018, has significantly reduced the scope for the use of Section 309 IPC and made the attempt to commit suicide punishable only as an exception.
- Section 115(2) of MHCA says that “The appropriate Government shall have a duty to provide care, treatment and rehabilitation to a person, having severe stress and who attempted to commit suicide, to reduce the risk of recurrence of attempt to commit suicide.
- Use of this Section can potentially deprive a victim of treatment in the golden hour, as hospitals wait for a go-ahead from police in what would be seen as a “medico-legal case”.

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- It is possible that hospital authorities may misuse this situation and charge extra to “hush up” the case by not informing the police. Similar extortion is possible on the part of corrupt police personnel as well.
 - Section 309 IPC can be redefined in such a manner where it can still be leveraged in law and order situations, and not be used against those who are suffering from genuine mental health issues.



2. GOVERNANCE

1. Delimitation Commission

Why in News?

- Lok Sabha Speaker Om Birla has nominated 15 MPs from Jammu and Kashmir, Assam, Manipur, Nagaland and Arunachal Pradesh to assist the Delimitation Commission in redrawing the Lok Sabha and the Assembly constituencies of the north-eastern States and the UT J&K.



Highlights:

- Union Ministers Kiren Rijiju and National Conference leader Farooq Abdullah are among the 15 MPs who will be associates of the Delimitation Commission.
- The appointments were made after the Delimitation Commission had recently written to the Lok Sabha speaker and other presiding officers of the Assemblies to nominate associate members.
- Jammu and Kashmir at present has no Assembly. It is a Union Territory with a provision of a legislature.
- Election Commissioner Sushil Chandra and State Election Commissioners of Jammu and Kashmir and the four north-eastern States will be its ex-officio members.

What is Delimitation?

- Delimitation literally means the process of fixing limits or boundaries of territorial constituencies in a state that has a legislative body.
- Delimitation is the process of redrawing the boundaries of the various assembly and Lok Sabha constituencies based on a recent census.
- **Delimitation Commission of India:**
- The Delimitation Commission is a statutory body which was first established in India in 1952.
- After this, Delimitation Commissions were constituted in 1963, 1973 and 2002.

- According to Article 82 of the Indian Constitution, the central government can set up a delimitation commission after every 10 years.
- The Delimitation Commission has not been formed after the year 2002 in India.
- The Indira Gandhi government had suspended delimitation in 1976 until the 2001 census.
- The delimitation of constituencies was further frozen till the first census after 2026, by the Delimitation Commission Act, 2002.

Members:

- The Delimitation Commission appointed by the Centre has three ex-officio members:
- A serving or retired judge of the Supreme Court as the chairperson,
- The Chief Election Commissioner or the Election Commissioner nominated by the CEC
- The State Election Commissioner as ex-officio members.
- Members of Parliament and Legislative Assemblies of states, for which the Delimitation Commission is set up, are drawn in as associate members to help the panel in its task.

2. National Numbering Plan

Why in News?

- The Telecom Regulatory Authority of India has recommended that a new National Numbering Plan be issued at the earliest so that a uniquely identifiable number can be provided to every subscriber in India.

Highlights:

- The Department of Telecommunications administers the numbers for fixed and the mobile networks based on the ITU's Telecommunication Standardization Sector (ITU-T) Recommendations. The management of numbering resources is governed by the National Numbering Plan.
- **TRAI has recommended:**
 - ✓ switching to a 11-digit mobile number,
 - ✓ reallocation of mobile numbering resources surrendered by operators who have shut shop
 - ✓ prefixing zero for all mobile calls made from fixed line.
 - ✓ It has also recommended that all the SIM-based M2M (machine to machine) connections using 10-digit mobile numbering series should be shifted to the 13-digit numbering series allocated by the Department of Telecommunications at the earliest.

- The government should enlist all newly allocated numbering resources for fixed line as well as mobile services every year.
- It has recommended automated allocation of numbering resources be done using number management system software to speed up the process of allocation in an efficient and transparent manner.

Need:

- The regulator said adequate availability of numbering resources is threatened because of an increase in the range of services and massive growth in the number of connections, especially in the mobile segment.
- The ongoing plan implemented in 2003, was developed keeping in mind the projections till the year 2033.
- The total number of telephone subscribers in India stands at 1,177.02 million with a tele-density of 87.45% at the end of January 2020.
- As a result, it is needed to review the utilisation of the numbering resources and make some policy decisions to ensure that adequate resources are available for sustainable growth of the telecommunication services.

Concerns:

- Some serious problems are anticipated with a change in the mobile number from 10 to 11 digits, and the move should be resorted to only if all the efforts to continue with the 10-digit numbering are exhausted.
- Migrating to 11 digits would require widespread modifications in the configuration of switches involving cost.
- This would also cause inconvenience to the customers in the form of dialling extra digits and updating phone memory.
- This could lead to more dialling errors, infructuous traffic, and loss of revenue to the Telephone service Providers.
- The changes will be required in the databases of all services requiring telephone numbers for identity like financial banking services, e-commerce, and government welfare schemes.

3. Data Security Guidelines

Why in News?

- The Kerala State government has issued a set of guidelines for the collection and processing of personal information in the wake of the Sprinklr controversy.

Highlights:

- The guidelines insisted that agencies and departments should collect sensitive personal data of citizens only with their legally recorded informed consent.
- Citizens should be informed about the purpose of the collection and how third parties might use the information.
- Aggregators should ensure that such data was anonymised and only send in encrypted form to third parties, if at all.
- The Authorities should store the sensitive data of citizens in the State Data Centre (SDC) to the extent possible.
- The SDC should examine whether the software or analytic tools they sourced from third parties would compromise the security of the information stored in its repositories.
- The administration should store data only in cloud servers leased by the government with the approval of the Central government.
- The IT rules should inform collection, storage and analysis of sensitive data.

Background:

- The government had contracted Sprinklr, a US firm as an emergency measure to crunch the health data of citizens to understand how the COVID-19 pandemic would behave in Kerala.
- However, the Opposition had dragged the government to the High Court, accusing it of having used the outbreak as a cover to allow the U.S.-based firm to harvest and monetise the medical information of the State's population.
- The Opposition had alleged that most of the data collected by health workers using a smartphone application provided by Sprinklr had gone irretrievably into the cloud servers maintained by the company in the U.S., far beyond Indian jurisdiction.

4. CHAMPIONS Platform to Empower MSMEs

Why in News?

- Prime Minister recently launched the CHAMPIONS platform which is a Technology driven Control Room-Cum-Management Information System.

Objectives:

- To resolve the problems of MSMEs including those of finance, raw materials, labour, regulatory permissions etc particularly in the COVID created difficult situation.

- To help them capture new opportunities: including manufacturing of medical equipment and accessories like PPEs, masks, etc and supply them in National and International markets.
- To identify and encourage the sparks: i.e. the potential MSMEs who can withstand the current situation and can become national and international champions.

Key Features:

- CHAMPIONS stand for Creation and Harmonious Application of Modern Processes for Increasing the Output and National Strength.
- The portal is basically for making the smaller units big by solving their grievances, encouraging, supporting, helping and handholding.
- It is a real one-stop-shop solution of Ministry of Micro, Small and Medium Enterprises (MSME). This ICT based system is set up to help the MSMEs in present difficult situation and to handhold them to become national and international champions.
- It is a technology packed control room-cum-management information system.
- In addition to ICT tools including telephone, internet and video conference, the system is enabled by Artificial Intelligence, Data Analytics and Machine Learning.
- It is also fully integrated on real time basis with GOI's main grievances portal Centralized Public Grievance Redress And Monitoring System (CPGRAMS) and MSME Ministry's own other web-based mechanisms.

5. Pradhan Mantri Svanidhi Scheme

Why in News?

- The Ministry of Housing and Urban Affairs recently launched PM Svanidhi or Pradhan Mantri Street Vendor's Atma Nirbhar Nidhi scheme.

Highlights:

- The special micro-credit facility plan aims to enable street vendors to resume their livelihoods, which have been hit hard due to the national lockdown.
- **Objective:**
 - ✓ To provide affordable loans of up to ₹10,000 to more than 50 lakh street vendors, who had their businesses operational on or before 24 March.
- Under the scheme, vendors can avail working capital loan of up to ₹10,000, which is repayable in monthly instalments within one year.

- On timely/early repayment of the loan, an interest subsidy of 7% per annum will be credited to the bank accounts of beneficiaries through Direct Benefit Transfer on six-months basis.
- The scheme is applicable to vendors, hawkers, thelewalas etc.in different areas/contexts who supply goods and services.
- Street vendors belonging to the surrounding peri-urban/rural areas are also included.
- Small Industries Development Bank of India (SIDBI) is the technical partner for implementation of this scheme and will manage the credit guarantee to the lending institutions through Credit Guarantee Fund Trust for Micro and Small Enterprises.
- The scheme is valid until March 2022.

Significance:

- These small vendors usually work with a small capital base taken on very high interest rates from informal sources.
- Further, they might have consumed their savings and high cost capital during the lockdown. Hence, the scheme provides affordable credit for working capital through formal banking channels to help them resume the business.

6. Pharmacopoeia Commission for Indian Medicine & Homoeopathy

Why in News?

- The Union Cabinet chaired by the Prime Minister has given its approval to re-establish Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H).
- PLIM, HPL and PCIM&H are going to be merged to establish PCIM&H, as a subordinate office of the Ministry of AYUSH with common administrative control.

Objective:

- Optimizing the use of infrastructural facilities, technical manpower and financial resources of the three organizations.
- Enhancing the standardization outcomes of Ayurveda, Siddha, Unani and Homoeopathy drugs towards their effective regulation and quality control.

Highlights:

- The approval has been given to establish PCIM&H as Subordinate Office under Ministry of AYUSH by merging Pharmacopoeia Laboratory for Indian Medicine (PLIM) and Homoeopathic Pharmacopoeia Laboratory (HPL)- the two central laboratories established at Ghaziabad since 1975.

- Presently, PCIM&H is an autonomous body under the aegis of Ministry of AYUSH established in 2010.
- This merger will facilitate focused and cohesive development of standards of AYUSH drugs and publication of pharmacopoeias and formularies.
- It is also intended to accord legal status to the merged structure of PCIM&H and its laboratory by virtue of making necessary amendments and enabling provisions in the Drugs & Cosmetics Rules, 1945.
- Indian Pharmacopoeia Commission is an autonomous institution of the Ministry of Health and Family Welfare which sets standards for all drugs that are manufactured, sold and consumed in India.
- Pharmacopoeia is an official publication containing a list of medicinal drugs with their effects and directions for their use.

Significance:

- Post-merger PCI M&H will have adequate administrative structure under the Ministry to strive for:
 - ✓ Augmenting the capacity and outcomes of pharmacopoeial work;
 - ✓ Achieving harmonization of pharmacopoeial standards of Ayurveda, Siddha, Unani and Homoeopathy drugs;
 - ✓ Preventing duplication and overlapping of drug standardization work and
 - ✓ Optimal utilization of resources in an effective manner.

7. TULIP: An Internship Program with ULBs across the country

Why in News?

- Recently, Union Human Resource Development Minister and MoS (I/C), Housing & Urban Affairs jointly launched a first of its kind initiative - The Urban Learning Internship Program (TULIP) - A program for providing internship opportunities to fresh graduates in all Urban Local Bodies (ULBs) and Smart Cities across the country.

Highlights:

- The portal for this programme is also launched on the occasion.
- This initiative is aligned with the government's vision to harness the potential of the youth in nation-building.
- The TULIP program will be instrumental in laying the foundation of New India as it will provide practical experience to students and will help infuse fresh ideas and innovative thinking into the working of Urban Local Bodies and smart cities.

- TULIP has been conceived pursuant to the Budget 2020-21 announcement by the Finance Minister under the theme 'Aspirational India'
- It is expected that under the programme 25000 fresh graduates will receive the opportunity of internship in the first year itself.
- This will not only help the interns get hands-on experience in the vast activities of urban local bodies but will also help to create a resource upon which the industry can draw easily for Hiring.

8. International Yoga Day

Why in News?

- The AYUSH Ministry in association with Morarji Desai National Institute of Yoga will host a television event as curtain raiser of the International Day of Yoga 2020.

Highlights:

- The curtain raiser would mark 10-day official countdown to International Day of Yoga 2020.
- In the light of COVID-19, this year the International Yoga Day is set to go digital.
- People are encouraged to practice Yoga at their homes.
- PM Modi has also announced an International video blogging contest My life, My Yoga for the general public.

International Day of Yoga 2020:

- The International Day of Yoga is celebrated annually on June 21 to raise global awareness about the benefits of the ancient Indian practice of Yoga.
- In December, 2014, the United Nations General Assembly declared June 21 as 'International Day of Yoga' through a resolution which saw the highest number of nations joining as co-sponsors ever for any General Assembly resolution.
- Adopted under the agenda of 'Global Health and Foreign Policy,' resolution recognized that Yoga provides a holistic approach to health and well-being.
- The first Yoga day was celebrated by the United Nations on June 21, 2015.

Why is Yoga day celebrated on 21st June?

- 21st June is the longest day of the year in the northern hemisphere (shortest in the southern hemisphere), having special significance in many parts of the world.
- From the perspective of yoga, the summer solstice marks the transition to Dakshinayana.

- The second full moon after summer solstice is known as Guru Poornima.
- Shiva, the first yogi (Adi Yogi), is said to have begun imparting the knowledge of yoga to the rest of mankind on this day, and became the first guru (Adi Guru).
- Dakshinayana is also considered a time when there is natural support for those pursuing spiritual practices.

9. Per Drop More Crop - PMKSY

Why in News?

- The Central Government has allocated a sum of Rs. 4000 crores to State Governments under 'Per Drop More Crop' component of PMKSY for the year 2020-21.

Per Drop More Crop:

- The Department of Agriculture Cooperation & Farmers' Welfare is implementing 'Per Drop More Crop' component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY- PDMC).
- The PMKSY- PDMC focuses on enhancing water use efficiency at farm level through Micro Irrigation technologies viz. Drip and Sprinkler irrigation systems.
- Drip micro irrigation technique not only helps in water saving but also in reducing fertilizer usage, labour expenses and other input costs.
- For the current year, annual allotment of Rs. 4000 crores have been conveyed to the State Governments.

Micro Irrigation Fund:

- Micro Irrigation Fund corpus of Rs. 5000 crores have been created with NABARD.
- NABARD will provide this amount to states on concessional rate of interest.
- Borrowings from NABARD shall be paid back in seven years including the grace period of two years.
- The lending rate under MIF has been proposed at 3% lower than the cost of raising the fund by NABARD.
- During the last five years (2015-16 to 2019-20), an area of 46.96 lakh hectares has been covered under Micro Irrigation through PMKSY-PDMC.

Objective:

- To facilitate the states in mobilizing the resources for expanding coverage of Micro Irrigation by taking up special and innovative projects.
- To incentivise micro irrigation beyond the provisions available under PMKSY-PDMC to encourage farmers to install micro irrigation systems.

Pradhan Mantri Krishi Sinchayee Yojana:

- Pradhan Mantri Krishi Sinchayee Yojana is a Centrally Sponsored Scheme to improve farm productivity and ensure better utilization of the resources in the country, launched in July 2015.
- It has been formulated by combining: Accelerated Irrigation Benefit Programme (AIBP), Integrated Watershed Management Programme (IWMP) and On Farm Water Management (OFWM) component of National Mission on Sustainable Agriculture.
- The scheme is implemented by the Ministries of Agriculture, Water Resources and Rural Development.

Objectives:

- Achieve convergence of investments in irrigation at the field level.
- Expand cultivable area under assured irrigation (har khet ko pani).
- Enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop).
- Improve on-farm water use efficiency to reduce wastage of water.
- Enhance recharge of aquifers.
- Introduce sustainable water conservation practices.

10. NIRF ranking 2020 for Higher Educational Institutions

Why in News?


- Union Minister of Human Resource Development recently released “India Rankings 2020” of Institutions of Higher Education in various categories.

Highlights:

- This is the fifth consecutive edition of India Rankings of the institutions of higher education in India.
- In 2020, an addition to nine rankings ie one domain “Dental” has been introduced for the first time bringing the total tally to 10 categories/subject domains.

Top institutes

Seven Indian Institutes of Technology (IITs), Indian Institute of Science (IISc), Jawaharlal Nehru University (JNU) and Banaras Hindu University (BHU) were ranked as the top 10 educational institutions of 2020 in the overall category by the National Institutional Ranking Framework (NIRF)



Rank	Institution	State
1	IIT, Madras	T.N.
2	IISc	Karnataka
3	IIT, Delhi	Delhi
4	IIT, Bombay	Maharashtra
5	IIT, Kharagpur	W.B.
6	IIT, Kanpur	U.P.
7	IIT, Guwahati	Assam
8	JNU	Delhi
9	IIT, Roorkee	Uttarakhand
10	BHU	U.P.

- The three top-ranked universities were IISc, JNU and BHU
- The three top-ranked colleges were Miranda House, Lady Shri Ram College for Women, and Hindu College; all part of the Delhi University

Data Collection:

- Besides, sourcing data on various parameters from applicant institutions, third party sources of data have also been used, wherever possible.
- A total number of 3771 unique institutions offered themselves for ranking under “Overall”, category-specific and/or domain-specific rankings for India Rankings 2020.
- These rankings come after the QS World University Rankings showed that India’s best including the IISc and most IITs have slipped in the global lists.

Key Findings:

- IIT Madras retained 1st Position in Overall Ranking as well as in Engineering,
- The IITs dominated the engineering category by occupying nine out of the top 10 spots.
- Among universities, improvements were made by Amrita Vidya Vishwapeetham (Rank 8 to 4), BITS-Pilani (from 23 to 15) and Jadavpur University (from 6 to 5). Aligarh Muslim University (AMU) slipped six spots to Rank 17.
- There was a bit of a reshuffle in the college category. While Miranda College retained the top position, Lady Shri Ram College emerged as the second-best from Rank 5 last year and Hindu College dropped from Rank 2 to 3 this year.
- AIIMS-Delhi is the country’s top medical institute followed by PGI, Chandigarh and Christian Medical College in Vellore.

Significance:

- These rankings act as a guide to students for selection of universities based on a set of criteria and help universities to improve their performance on various ranking parameters and identify gaps in research and areas of improvement.
- These rankings of Institutions at the national level instill a competitive spirit amongst institutions to perform better and secure a higher rank in the international ranking.

NIRF Ranking:

- The National Institutional Ranking Framework (NIRF) was approved by the MHRD and launched on 29th September 2015.
- This framework outlines a methodology to rank institutions across the country.
- The methodology draws from the overall recommendations broad understanding arrived at by a Core Committee set up by MHRD, to identify the broad parameters for ranking various universities and institutions.
- The parameters broadly cover:
 - ✓ “Teaching, Learning and Resources,”

- ✓ “Research and Professional Practices,”
 - ✓ “Graduation Outcomes,”
 - ✓ “Outreach and Inclusivity,” and
 - ✓ “Perception”
- This ranking exercise has also created a habit of organizing the data by the institutions and most of all these institutions attempt themselves to become more competitive.
 - Aside from the overall rankings, NIRF also lists out best institutions across another nine categories — college, university, medical, engineering, management, pharmacy, law, architecture, and Dental.

11. Jeevan Pramaan for Pensioners

Why in News?

- EPFO has proactively partnered with Common Service Centre to provide facility to submit Digital Jeevan Pramaan during COVID -19 pandemic.

Aim:

- To bring service delivery closer to the door steps of Employees’ Pension Scheme (EPS) pensioners, especially during the challenging times of COVID -19.

Highlights:

- By leveraging the last mile network of over 3.65 lakh Common Services Centers, Employees’ Provident Fund Organisation (EPFO) provides its 65 lakh pensioners facility to submit Digital Jeevan Pramaan closer to their residence.
- EPS pensioners are required to submit Jeevan Pramaan /Life certificate each year to continue to draw pension.
- In addition to CSC centers, EPS pensioners can also submit Jeevan Pramaan through 135 regional offices and 117 district offices and pension disbursing banks.
- EPS pensioners can now submit Digital Jeevan Pramaan at any time during the year as per their convenience.
- The life certificate will remain valid for one year from date of submission.
- Earlier, the pensioners were required to submit the Jeevan Pramaan in the month of November.

Jeevan Pramaan:

- Jeevan Pramaan is a biometric Enabled digital service for Pensioners.

- Pensioners of Central Government, State Government or any other Government organization can take benefit of this facility.
- It was launched on 10 November 2014 and expected to benefit over one crore pensioners.
- Every year, pensioners are required to provide a Life Certificate or Jeevan Pramaan Patra to their bank in November to ensure continuity of their pension, which can be done both physically or online.

12. Sex Test Rules

Why in News?

- The Supreme Court has asked the government to explain its decision to suspend crucial rules of a parliamentary law against pre-natal sex determination and sex selection till June end.

Highlights:

- As per a petition in SC, the Central government has arbitrarily and selectively weakened a legislation aimed at curbing the pernicious activity of sex-selection and sex-determination.
- By suspending the Rules, the government has diluted the PCPNDT Act, the petition said.
- SC issued formal notice to the government on April 4 notification issued by the Union Ministry of Health and Family Welfare which put on hold the implementation of certain rules of the Pre-Conception and Pre-Natal Diagnostic Techniques (Prohibition of Sex-Selection Rules) of 1994 till June 30, 2020.
- One of the suspended provisions, Rule 8, is intrinsically connected with the statute's provisions dealing with the mandatory registration of genetic counselling centres, laboratories and clinics. This will result in misuse of technology by unscrupulous individuals who will no longer be deterred by the monitoring mechanism provided in the Rules. This illegal suspension of Rules, while medical establishments continue to function, will provide avenues for misuse of technology for purposes of sex-selection and sex-determination, and will result in a loss of the gains made in the strict implementation of the Act.

Pre-Conception and Pre-Natal Diagnostic Techniques:

- Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994 is an Act of the Parliament of India enacted to stop female foeticides and arrest the declining sex ratio in India.
- The act banned prenatal sex determination.

Objectives:

- To ban the use of sex selection techniques before or after conception.
- To prevent the misuse of prenatal diagnostic technique for sex selective abortion.

Salient Features:

• Offences under this Act Include:

- ✓ Conducting or helping in the conduct of prenatal diagnostic technique in the unregistered units,
- ✓ Sex selection on a man or woman,
- ✓ Conducting PNDT test for any purpose other than the one mentioned in the act,
- ✓ Sale, distribution, supply, renting etc. of any ultra sound machine or any other equipment capable of detecting sex of the foetus.

• Main Provisions in the Act:

- ✓ The Act provides for the prohibition of sex selection, before or after conception.
 - ✓ It regulates the use of pre-natal diagnostic techniques, like ultrasound machine by allowing them their use only to detect- genetic abnormalities, metabolic disorders, chromosomal abnormalities, certain congenital malformations, haemoglobinopathies, Sex linked disorders.
 - ✓ No laboratory or center or clinic will conduct any test including ultrasonography for the purpose of determining the sex of the foetus.
 - ✓ No person, including the one who is conducting the procedure as per the law, will communicate the sex of the foetus to the pregnant woman or her relatives by words, signs or any other method.
 - ✓ Any person who puts an advertisement for pre-natal and pre-conception sex determination facilities in the form of a notice, circular, label, or any document, or advertises through interior or other media in electronic or print form or engages in any visible representation made by means of hoarding, wall painting, signal, light, sound, can be imprisoned for up to three years and fined Rs. 10,000.
- The number of girls missing at birth due to the practice of gender biased sex selection in India has been estimated at 0.46 million girls per year for the period 2001-12 (which is 5.52 million girl children, missing at birth for the 12-year period).

13. Pradhan Mantri Bhartiya Janaushadhi Kendras

Why in News?

- Sanitary napkins available for Rs. 1/- per pad at Pradhan Mantri Bhartiya Janaushadhi Kendras.

Highlights:

- Since inception of the scheme in 2018, more than 4 crore sanitary napkins have been sold through these outlets.
- In India, menstruation and menstrual practices still face some social, cultural, and religious restrictions which are a big barrier in the path of menstrual hygiene management. In many parts of the country, especially in rural areas, girls and women do not have access to sanitary products or they do not opt for them as most of these items available in the market are unaffordable for them.
- The napkins being sold are environmental friendly, as these pads are made with oxo-biodegradable material complying with ASTM D-6954 (biodegradability test) standards.
- Pradhan Mantri Bhartiya Janaushadhi Kendras:
- Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJK) are set up across the country so as to reduce the out of pocket expenses for health care, under the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP).
- The Bureau of Pharma PSUs of India (BPPI) under the Department of Pharmaceuticals is involved in coordinating, procuring, supplying and marketing generic medicines through PMBJK. The procured generic medicines are sold at 50% to 90% lesser prices as compared to the market prices of branded medicines.

14. Khelo India State Centres of Excellence (KISCE)

Why in News?

- The Sports Ministry will establish KISCE under the Khelo India Scheme.

Highlights:

- One KISCE will be identified in each state and union territory, with an effort to create a robust sporting ecosystem in the entire country.
- In the first leg, the Ministry has identified state-owned sports facilities in eight states of India, including, Karnataka, Odisha, Kerala, Telengana and the north east states of Arunachal Pradesh, Manipur, Mizoram and Nagaland which will be upgraded into Khelo India State Centre of Excellence (KISCE).

- This move is expected to help India achieve success in Olympic Games and other international tournaments.
- In order to upgrade the existing centre to the KISCE, the government will extend a 'Viability Gap Funding' in sports science and technology support for sports disciplines practiced at the centre and also bridge the gaps in requirement of sports equipment, expert coaches and high-performance managers.
- The support extended will be to Olympic sports, though support can be extended in sports science and allied fields in other sporting disciplines being run in the centre.
- The state and UT will run the centre and build capacity to turn it into a world-class sporting facility, and will be responsible for all aspects of management of the centre including boarding, lodging and maintenance, while funds for critical gaps such as expert coaches, support staff, equipment and infrastructure will be extended through the Khelo India Scheme.
- The eight centres will be given a grant based on the actual amount finalised as per the requirement indicated after a comprehensive gap analysis study.
- In a bid to broad-base talent identification, the states and UTs will also identify and develop talent in each sport for which funding is received at the centre.
- The Sports Authority of India will extend expertise, resources and a monitoring system to ensure that the level of performance of the athletes improve to international standards.

15. DBT – AMTZ Mobile Diagnostic Unit

Why in News?

- India's first I-Lab (Infectious disease diagnostic lab) for COVID-19 testing in rural and inaccessible areas of India was Inaugurated Recently.

DBT-AMTZ COMManD:

- The Department of Biotechnology (DBT), Ministry of Science & Technology along with Andhra Pradesh Med-tech Zone (AMTZ) has initiated the DBT-AMTZ COMManD [COVID Medtech Manufacturing Development] Consortia to address the shortage of critical healthcare technologies in India and move progressively towards a stage of self-sufficiency.
- Under this, India's first I- lab (infectious disease diagnostic lab) has been built at AMTZ in record time of 8 days.

Infectious Disease Diagnostic Laboratory (I-LAB):

- This is a mobile diagnostic unit with biosafety facility.

- The I- lab is a BSL-2 facility with on-site ELISA, RT-PCR, Bio chemistry analysers.
- It can run 50 RT-PCR reactions and about 200 ELISA in a day.
- To promote last mile access of testing to rural India, DBT under the Covid-Command strategy has supported building of mobile testing labs through AMTZ.
- The unique feature of these mobile testing labs is their utility in diagnosing other infectious diseases beyond the COVID-19.
- The labs will be provided to the regional/City hubs and they will deploy it further in the interior, inaccessible parts of the Region.

16. YUKTI 2.0 platform for Higher Education Institutes

Why in News?

- Union Minister of Human Resource Development virtually launched YUKTI 2.0 platform for Higher Education Institutes in New Delhi recently.

Highlights:

- The YUKTI (Young India combating COVID with Knowledge, Technology and Innovation) web portal on 11 April, 2020.
- YUKTI 2.0 is logical extension of earlier version of 'YUKTI', an initiative of MHRD, to identify ideas relevant in COVID pandemic.
- The initiative will help to systematically assimilate technologies having commercial potential and information related to incubated start-up's in our higher education institutions.
- Through this portal, MHRD will ensure that students, teachers and researchers in higher educational institutions are getting appropriate support to meet the requirements needed to advance their technologies and innovations.

Significance:

- The students, faculty members, startups and other stakeholders of higher education institutions can register on the YUKTI portal and share their technologies and innovations.
- The database will provide a clear picture of the state of the innovation ecosystem of our higher educational institutions.
- This will also help the government to identify bottlenecks and formulate appropriate policies to strengthen the innovation ecosystem in the country.
- The portal will work towards promoting innovations and entrepreneurship culture in our higher education system and involving youth in Nation Building.

Need for the Platform:

- To support student entrepreneurs keen on pursuing their startups along with academics.
- To emerge as Market place for connecting innovators with investors, so that innovative technologies can be taken forward for commercialization.

17. Extension of the Commission Constituted under Article 340

Why in News?

- The Union Cabinet has approved the extension of the term of the Commission to examine the issue of Sub-categorization of Other Backward Classes, by 6 months i.e. up to 31.1.2021.

Highlights:

- The Commission was constituted under article 340 of the Constitution with the approval of President on 2nd October 2017.
- The Commission is headed by Justice (Retd.) Smt. G. Rohini has since interacted with all the States/UTs which have subcategorized OBCs, and the State Backward Classes Commissions.

Benefits:

- It aims to benefit all persons belonging to the castes/communities which are included in the Central List of SEBCs but have not been able to get any major benefit of the existing scheme of reservation for OBCs in Central Government posts & for admission in Central Government Educational Institutions.
- The Commission is likely to make recommendations for benefit of such marginalized communities in the Central List of OBCs.
- The expenditure involved related to the establishment and administration costs of the Commission, will be borne by the Department of Social Justice and Empowerment.

Article 340:

- The article 340 of the Indian Constitution lays down conditions for the appointment of a Commission to investigate the conditions of backward classes.
- The President may by order appoint a Commission consisting of such persons as he thinks fit to investigate the conditions of socially and educationally backward classes within the territory of India.

18. Animal Husbandry Infrastructure Development Fund

Why in News?

- The Union Cabinet chaired by PM Modi approved setting up of Animal Husbandry Infrastructure Development Fund recently.

Highlights:

- The Cabinet has approved setting up of Animal Husbandry Infrastructure Development Fund (AHIDF) amounting to Rs. 15000 crores.
- The government had earlier approved the Dairy Infrastructure Development Fund worth Rs. 10,000 crores for incentivizing investment by the cooperative sector for the development of dairy infrastructure.
- The AHIDF would incentive infrastructure investments in dairy, meat processing and animal feed plants.

Benefits:

- The eligible beneficiaries under the Scheme would be Farmer Producer Organizations (FPOs), MSMEs, Section 8 Companies, Private Companies and individual entrepreneur with only 10% margin money contribution by them.
- The balance 90% would be the loan component to be made available to them by scheduled banks. Government of India will provide 3% interest subvention to eligible beneficiaries.
- There will be 2 years' moratorium period for repayment of the loan with 6 years' repayment period thereafter. GoI would set up a Credit Guarantee Fund of Rs. 750 crores to be managed by NABARD which would provide credit guarantee to the projects which are covered under the MSME defined ceilings.
- Guarantee Coverage would be up to 25% of the Credit facility of the borrower.

Significance:

- There is huge potential waiting to be unlocked through private sector investment in the animal husbandry sector.
- The AHIDF with the interest subvention scheme for private investors will ensure the availability of capital to meet upfront investment required for these projects and also help enhance overall returns/ payback for investors.
- Such investments in processing and value addition infrastructure by eligible beneficiaries would also promote exports.
- Since almost 50-60% of the final value of dairy output in India flows back to farmers, the growth in this sector can have a significant direct impact on farmer's income.

19. Nasha Mukht Bharat: Annual Action Plan

Why in News?

- Nasha Mukht Bharat: Annual Action Plan (2020-21) was e-launched by the Ministry of State for Social Justice and Empowerment on the occasion of International Day Against Drug Abuse and Illicit Trafficking (26 June).

Highlights:

- The Nasha Mukht Bharat Annual Action Plan for 2020-21 would focus on 272 most affected districts and launch a three-pronged attack combining efforts of Narcotics Bureau, Outreach/Awareness by Social Justice and Treatment through the Health Department.
- The Action Plan has the following components: Awareness generation programmes; Focus on Higher Educational institutions, University Campuses and Schools; Community outreach and identification of dependent population; Focus on Treatment facilities in Hospital settings; and Capacity Building Programmes for Service Provider.
- The Ministry of Social Justice and Empowerment is the nodal Ministry for drug demand reduction which coordinates and monitors all aspects of drug abuse prevention.
- It includes assessment of the extent of the problem, preventive action, treatment and rehabilitation of addicts, dissemination of information and public awareness.

National Action Plan for Drug Demand Reduction:

- The Ministry has also prepared a National Action Plan for Drug Demand Reduction for the period 2018-2025.
- It aims at reduction of adverse consequences of drug abuse through a multi-pronged strategy involving education, de-addiction and rehabilitation of affected individuals and their families.
- The Action Plan includes components for preventive education and awareness generation, capacity building, treatment and rehabilitation, setting quality standards, focussed intervention in vulnerable areas, skill development, vocational training and livelihood support of ex-drug addicts, State/UT specific interventions, surveys, studies, evaluation and research etc.
- The funds for this programme in the year 2020-21 has been increased to Rs 260 crores.

3. SCIENCE & TECHNOLOGY

1. National AI Portal of India

Why in News?

- Union Minister for Electronics and IT, Law and Justice and Communications has launched the National AI Portal of India.

Highlights:

- India's national Artificial Intelligence Portal has been jointly developed by the Ministry of Electronics and IT and the IT Industry.
- National e-Governance Division of the Ministry of Electronics and IT and NASSCOM from the IT industry will jointly run this portal. This portal shall work as a one stop digital platform for AI related developments in India, sharing of resources such as articles, start-ups, investment funds in AI, resources, companies and educational institutions related to AI in India.
- The portal will also share documents, case studies, research reports, etc. It has sections about learning and new job roles related to AI.

Responsible AI for Youth:

- The IT Minister also launched a National Program for the youth, "Responsible AI for Youth".
- The aim of this Program is to give the young students of our country a platform and empower them with appropriate new age tech mind-set, relevant AI skill-sets and access to required AI tool-sets to make them digitally ready for the future.
- The Program has been created and launched by the National e-Governance Division, Ministry of Electronics & IT in collaboration with Intel India, with support from the Department of School Education and Literacy (DoSE&L), Ministry of Human Resource Development.
- DoSE&L will help reach out to State Education Departments to nominate teachers as per eligibility criteria.
- "Responsible AI for Youth" will empower the youth to become AI ready and help reduce the skill gap, while enabling youth to create meaningful social impact solutions.
- The Program is designed to reach out to students from Government schools pan India and provide them with an opportunity to become part of the skilled workforce in an inclusive manner.

2. Ongoing Sixth Mass Extinction

Why in News?

- According to a new research published in the journal Proceedings of the National Academy of Sciences of the United States of America (PNAS), the ongoing sixth mass extinction may be one of the most serious environmental threats to the persistence of civilisation.

Highlights:

- The research claims that this extinction is human-caused and is more immediate than climate destruction. Even though only an estimated 2% of all of the species that ever lived are alive today, the absolute number of species is greater now than ever before.
- It was into such a biologically diverse world that we humans evolved, and such a world that we are Destroying.

Mass Extinction of species:

- Mass extinction refers to a substantial increase in the degree of extinction or when the Earth loses more than three-quarters of its species in a geologically short period of time.
- So far, during the entire history of the Earth, there have been five mass extinctions.
- The sixth, which is ongoing, is referred to as the Anthropocene extinction.
- The five mass extinctions that took place in the last 450 million years have led to the destruction of 70%-95% of the species of plants, animals and microorganisms that existed earlier.
- These extinctions were caused by “catastrophic alterations” to the environment, such as:
 1. Massive volcanic eruptions,
 2. Depletion of oceanic oxygen,
 3. Collision with an asteroid, etc.
- After each of these extinctions, it took millions of years to regain species comparable to those that existed before the event.

3. Arsenicum album 30

Why in News?

- A homoeopathic drug Arsenicum album 30, has become a subject of debate after several states recommended it for preventive use against Covid-19.

Highlights:

- The Ministry of AYUSH has listed the drug among preventive and prophylactic simple remedies against Covid-19.

- The debate stems from the fact that there is no scientific evidence that the drug works against Covid-19, a fact stressed not only by medical scientists but also by some homoeopathic practitioners themselves. Arsenicum album 30 has been recommended by the state governments in Rajasthan, Karnataka, Tamil Nadu, Andhra Pradesh and Kerala.
- The civic authorities in various states have been distributing the drug to high-risk populations. There have been reports about people flocking to homeopathic clinics to buy Arsenicum album drug, sometimes at triple the cost.

Arsenicum:

- Arsenicum album is made by heating arsenic with distilled water, a process repeated several times over three days.
- The health hazards of arsenic contamination in water are well known; long-term exposure to the metal can cause skin cancer, pulmonary and cardiovascular diseases.
- The homoeopathic drug has less than 1% arsenic and is considered to correct inflammation in the body. It takes care of diarrhoea, cough and cold.
- Arsenicum album is used commonly by homeopaths to treat anxiety, restlessness, cold, ulcerations, burning pains.

Concerns:

- The director of the Indian Council of Medical Research maintained that they have issued no guidelines regarding the medicine. The WHO has no guidelines on using Arsenicum album as a Covid-19 treatment either. There is no scientific evidence that it works as prophylactic. With no clinical trial or large-scale study having been undertaken anywhere to scientifically validate the use of Arsenicum album 30 as a preventive medication, the massive demand is worrisome. The AYUSH Ministry has based its recommendation on existing use of the medicine for respiratory illness and influenza.

4. NCVTC to Develop host-directed Antivirals for COVID-19

Why in News?

- India's veterinary scientists have now joined the hunt for a drug for the treatment of COVID-19.

Highlights:

- The Scientists at the Hisar-based National Centre for Veterinary Type Cultures are screening their library comprising 94 small molecule chemical inhibitors for antivirals for coronavirus.

- The study has been approved by the Science and Engineering Research Board (SERB).
- As per the scientists, all the drugs for treatment of the virus were designed to hit the viral protein.
- But when a virus mutates (as in the case of COVID-19), the drug becomes ineffective, as it won't bind on the viral protein.
- The scientists are exploring an alternative strategy of targeting the proteins in the host cell that would be used by the virus to replicate.
- Those proteins are being targeted that are not used by the host (human) cell to replicate, but are used by the virus to grow.
- The host-directed antivirals have less tendency of becoming resistant to drugs.

Chemical Library Screening:

- Chemical library screening in medicinal chemistry research is a useful methodology that considerably shortens drug discovery and development cycle, especially for newly identified etiologic agents, such as SARS-Cov-2.
- National Centre for Veterinary Type Cultures:
- NCVTC Hisar, India is a microbial repository responsible for conservation of microbes where microbial biodiversity of animal origin is being conserved.
- It is done so that microbial biodiversity can be utilized effectively for research, teaching and development of biologicals for improving livestock and Human Health.

5. LIDAR Technology

Why in News?

- The coronavirus pandemic has stopped archaeologists from going to dig at sites, but that did not stop a U.K.-based team from continuing their research.
- In this method laser light was used to survey a site and its reflection is measured with a sensor.
- The method is commonly used by geologists and surveyors to make high-resolution maps.

LiDAR in India:

- As per experts the technology had immense potential for India.
- Though LiDAR has been used for agriculture and geology-related applications, our country has still not used it in archaeology.
- The problem is that the data needs to be bought and processed by experts which sometimes is very expensive.

- LiDAR will also help in understanding domestic architecture, and defensive architecture like moats and fortifications in the area.
- Using this we can even look at the hydrology and water management systems in greater detail, all of which is probably under dense vegetation.

LIDAR Technology:

- LiDAR stands for light detection and ranging.
- It was first used on a spacecraft during the Apollo 15 mission in 1971, when astronauts mapped the surface of the moon.
- It is basically a remote sensing method that uses light in the form of a pulsed laser to measure distances to the subject.
- A LiDAR sensor fires off beams of laser light and then measures how long it takes for the light to return to the sensor.
- The basic mechanism is known as “time of flight” measurement in which a laser beam is emitted towards an object, reflected off of the object and then collected in a sensor located within the LiDAR module.
- These light pulses – when combined with other data, generate accurate, high-resolution three-dimensional information of the object.

Application of LIDAR Technology:

- LiDAR is used to collect high-density data in order to produce high-resolution maps.
- Ground based surveys and aerial surveys: LiDAR sensors are being fitted under drones to create readings of the terrain, transmission lines, buildings, and trees.
- LiDAR is currently being used to provide 3D maps of the ground beneath.

6. Electrolytic splitting of Water

Why in News?

- Scientists from The Centre for Nano and Soft Matter Sciences (CeNS), an autonomous institute of the Department of Science and Technology (DST), have found out a low cost and efficient way to generate hydrogen from water using Molybdenum dioxide as a catalyst.

Electrolytic Splitting of Water:

- Electrolysis of water is the decomposition of water into oxygen and hydrogen gas due to the passage of an electric current.

- This technique can be used to make hydrogen gas, the main component of hydrogen fuel, and breathable oxygen gas, or can mix the two into oxyhydrogen, which is also usable as fuel, though more volatile and dangerous.
- It is a promising method to generate hydrogen but requires energy input that can be brought down in the presence of a catalyst.

Using Molybdenum Catalyst:

- The scientists have shown that Molybdenum dioxide (MoO_2) nanomaterials annealed in hydrogen atmosphere can act as efficient catalysts to reduce the energy input to bring about water splitting into Hydrogen.
- Molybdenum dioxide has the potential to replace the currently employed catalyst platinum, which is expensive and has limited resources.
- MoO_2 is a conducting metal oxide that is one of the low-cost catalysts with good efficiency and stability for hydrogen evolution.
- The catalyst is highly stable for a longer duration of reaction with sustained hydrogen evolution from water. About 80 % efficient conversion of electrical energy into hydrogen has been achieved using this catalyst.

Significance:

- Hydrogen is considered as the future of clean and sustainable energy as it can be generated from water and produces water on energy generation without any carbon footprint.
- Hydrogen can be directly used as a fuel similar to natural gas or as input for fuel cells to generate electricity. It is the future energy for a clean environment and an alternative to fossil fuels, underlining the necessity of low-cost catalysts for its production.

7. Covid has exposed the limitations of machine learning

Why in News?

- The U.S. Labor Department said that the economy unexpectedly added 2.5 million jobs in May 2020 which surprised many economists and analysts who had forecast millions more losing their jobs based on their Machine Learning (ML) models.

Highlights:

- This isn't the first time that the technology around ML has failed.
- In 2016, sophisticated ML algorithms failed to predict the outcomes of both the Brexit vote as well as the US presidential election.

Machine Learning:

- It represents the idea that a computer, when fed with enough raw data, can begin on its own to see patterns and rules in these numbers.
- It can also learn to recognize, categorize and feed new data upon arrival into the patterns and rules already created by the computer program.
- As more data is received, it adds to the “intelligence” of the computer by making its patterns and rules ever more refined and reliable.

Rationale behind its Popularity in Recent Years:

- Massive computational power - It is now available at low cost and can be provisioned in the cloud very quickly.
 - ✓ Improvements in Graphics Processing Units design (now with thousands of cores therefore ideally suited to parallel workloads) have increased the training speed of deep learning algorithms.
- Big Data – There has been an explosion in the amount of data we all create, coupled with near limitless storage capacity.
- Large and diverse data sets provide better training material for the algorithms.
- Algorithms - They are now better at finding patterns in the mountains of data, and AI and machine learning platforms from players such as Google, IBM, and Microsoft are making it much easier to develop applications.
- Investment – This is also growing fast especially with respect to machine learning and deep learning.

Utilities of Machine Learning:

- Load forecasting: It could be used to forecast supply and demand in real time and optimize economic load dispatch.
 - ✓ In the UK, Google’s DeepMind has teamed up with National Grid to predict supply and demand peaks and hopes to reduce national energy usage by 10%.
- Predictive maintenance: It can be bolstered with drones for asset inspections, replacing time intensive and risky manual inspections.
 - ✓ The drones are trained using deep learning algorithms to automatically identify defects and predict failures without interrupting operations.
- **Virtual Personal Assistants:** Machine learning is an important part of these personal assistants as they collect and refine the information on the basis of your previous involvement with them.

- ✓ Later, this set of data is utilized to render results that are tailored to your preferences.
- ✓ Siri, Alexa, Google Now are some of the popular examples of virtual personal assistants.
- **Predictions while Commuting:** We all have been using GPS navigation services, although correct estimation of congestion data requires GPS installation on every car however this is not the case.
 - ✓ In such a scenario Machine learning helps to estimate the regions where congestion can be found on the basis of daily experiences.
- **Social Media Services:** From personalizing your news feed to better ads targeting, social media platforms are utilizing machine learning for their own and user benefits.
 - ✓ People you may know suggestions and Face Recognition are some of the examples.
- **Online Fraud Detection** - Machine learning is proving its potential to make cyberspace a secure place and tracking monetary frauds online is one of its examples.
 - ✓ For example: Paypal is using ML for protection against money laundering.
 - ✓ The company uses a set of tools that helps them to compare millions of transactions taking place and distinguish between legitimate or illegitimate transactions taking place between the buyers and sellers.

Concerns:

- Despite the great advances in computing, it is still very difficult to teach computers both human context and basic common sense.
 - ✓ The brute-force approach of Artificial Intelligence (AI) behemoths does not rely on well-codified rules based on common sense.
 - ✓ It relies instead on the raw computing power of machines to sift thousands upon thousands of potential combinations before selecting the best answer using pattern-matching.
 - ✓ These same algorithms have been guiding decisions made by businesses for a while now—especially strategic and other shifts in corporate direction based on consumer behaviour.
 - ✓ In a world where corporations make binary choices (either path X or path Y, but not both), these algorithms still fall short.
- The pandemic has exposed their insufficiency further. This is especially true with ML systems at e-commerce retailers that were initially programmed to make sense of our online behaviour.

- ✓ During the pandemic, our online behaviour has been volatile which was not rightly predicted by ML and retailers were trying to stock one item in one week and another item in the second week.
- Another issue is of Stationary assumptions by ML softwares to predict the future.
 - ✓ The paradox is that finding patterns and then using them to make useful predictions is what ML is all about in the first place.
 - ✓ But static assumptions have meant that the data sets used to train ML models haven't included anything more than elementary "worst case" information.
 - ✓ They didn't expect a pandemic.
- **Formation of Bias in ML software is another roadblock.**
 - ✓ The bias enters through the manner in which an ML solution is framed, the presence of "unknown unknowns" in data sets, and in how the data is prepared before it is fed into a computer.
 - ✓ These are further compounded by an "echo chamber" that is created by finely-targeted algorithms that these companies use.
 - ✓ This Chamber bombards an overload of information that serves to reinforce what the algorithm thinks the searcher needs to know.
 - ✓ For instance, if I search for a particular type of phone on an e-commerce site, future searches are likely to auto-complete with that phone showing up even before I key in my entire search string.

Conclusion:

- The situation brought about by the covid pandemic is still volatile and fluid. The training data sets and the computer code they produce to adjust predictive ML algorithms are unequal to the volatility. They need constant manual supervision and tweaking so that they do not throw themselves and other sophisticated downstream automated processes out of gear.

8. Flood Warning System For Mumbai - Iflows

Why in News?

- IFLOWS-Mumbai is developed as a state of art Integrated Flood Warning system for Mumbai.

Highlights:

- Extreme precipitation events are on the rise in India driven by warming temperatures and changes in the monsoon due to climate change.

- The capital of the state of Maharashtra, Mumbai, a megapolis and the financial capital of India has been experiencing floods with increased periodicity.
- Cyclone Nisarga missed the city narrowly on June 3, 2020.
- The recent flood on 29 August 2017, brought the city to a standstill.
- The flood during 26th July 2005, is probably etched in the memory of every Mumbai citizen, when the city received a rainfall of 94cm, a 100 year high in a span of 24 hours paralyzing the city completely.

IFLOWS System:

- It is being developed by the Ministry of Earth Sciences in close coordination with Municipal Corporation of Greater Mumbai.
- It will enhance the resilience of Mumbai by providing early warning for flooding specially during high rainfall events and cyclones
- I-FLOWS is built on a modular structure and comprises seven modules, namely Data Assimilation, Flood, Inundation, Vulnerability, Risk, Dissemination Module and Decision Support System.
- **The System Incorporates -**
 - ✓ Weather models from National Centre for medium Range Weather Forecasting (NCMRWF).
 - ✓ Field data from the rain gauge network stations setup by Indian Institute of Tropical Meteorology (IITM), Municipal Corporation of Greater Mumbai (MCGM) and IMD (India Meteorological Department).
 - ✓ Thematic layers on land use, infrastructure etc provided by MCGM.
 - ✓ Based on inputs from weather models, Hydrologic models are used to transform rainfall into runoff and provide inflow inputs into the river systems.
 - ✓ A web GIS based decision support system is built to calculate the vulnerability and risk of elements exposed to flood.
 - ✓ Hydraulic models are used to solve equations of fluid motion to replicate the movement of water to assess flooding in the study area.
- Since, Mumbai is an island city with its connectivity to sea, hydrodynamic models and storm surge models are used to calculate the tide and storm surge impacts on the city.
- The system has provisions to capture the urban drainage within the city and predict the areas of flooding, which will be incorporated in the final system.

9. Scientists Grow Human Embryo Using Stem Cells

Why in News?

- British scientists have grown a human “embryo” in a lab using just stem cells. This will let them study the first stages of life to reveal causes of birth defects and Infertility.

Highlights:

- The lab created “baby blueprint” closely resembles a three-week old human embryo but it lacks cells needed to form a brain.
- It can never be successfully implanted so allows researchers to avoid rules on such experiments. It is illegal to let donated embryos develop beyond 14 days.
- The layout of humans, known as the body plan, happens through a process known as gastrulation, where three distinct layers of cells are formed in the embryo that will later give rise to the body's three main systems: nervous, musculoskeletal and digestive.
- The advance is the first-time scientists have been able to directly study human development at around three weeks, referred to as the “black box” period because they have been unable to study it before. Many birth defects happen during this period, and a better understanding of gastrulation could aid our understanding of issues such as infertility, miscarriage and genetic disorders. To create the three-dimensional models, known as gastruloids, the team collected tight bundles of human cells and treated them with chemicals that acted as signals to activate certain genes. The scientists stressed that gastruloids never develop into fully formed embryos because they have no brain cells and lack any of the tissues for implantation in the womb. Nevertheless, they were able to observe around 72 hours of the models' development and identify clear signs of the events that lead to the formation of muscles, bone and cartilage.

10. Global Partnership on Artificial Intelligence (GPAI)

Why in News?

- India joins Global Partnership on Artificial Intelligence (GPAI) as a founding member to support the responsible and human-centric development and use of AI.

GPAI:

- GPAI is an international and multi-stakeholder initiative to guide the responsible development and use of AI, grounded in human rights, inclusion, diversity, innovation, and Economic Growth.

- It is the league of leading economies including India, USA, UK, EU, Australia, Canada, France, Germany, Italy, Japan, Mexico, New Zealand, Republic of Korea, and Singapore.
- GPAI will be supported by a Secretariat, to be hosted by Organization for Economic Cooperation and Development (OECD) in Paris, as well as by two Centers of Expertise- one each in Montreal and Paris.
- This is also the first initiative of its type for evolving better understanding of the challenges and opportunities around AI using the experience and diversity of participating countries.
- In order to achieve this goal, the initiative will look to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities.

Aims and Objectives:

- In collaboration with partners and international organizations, GPAI will bring together leading experts from industry, civil society, governments, and academia to collaborate to promote responsible evolution of AI.
- It will also help evolve methodologies to show how AI can be leveraged to better respond to the present global crisis around COVID-19.

India and AI:

- It is pertinent to note that India has recently launched the National AI Strategy and National AI Portal. It has also started leveraging AI across various sectors such as education, agriculture, healthcare, e-commerce, finance, telecommunications, etc. with inclusion and empowerment of human being approach by supplementing growth and development.
- By joining GPAI as a founding member, India will actively participate in the global development of Artificial Intelligence, leveraging upon its experience around the use of digital technologies for inclusive growth.

11. COVID-19 may Trigger New Diabetes

Why in News?

- COVID-19 may trigger the onset of diabetes in healthy people, and also cause severe complications in diabetic patients, according to an international group of leading experts.
- Based on clinical observations made so far, there is a bi-directional relationship between COVID-19 and diabetes.

Highlights:

- Scientists have explained that diabetes, on the one hand, is associated with increased risk of COVID-19 severity and mortality with 20 to 30% of patients who died with the infectious disease reported to have diabetes.
- They said new-onset diabetes and atypical metabolic complications of pre-existing diabetes, including life-threatening ones, have been observed in people with COVID-19.
- Earlier studies had shown that the protein ACE-2 which binds to SARS-Cov-2 and allows the virus to enter human cells is not only located in the lungs, but also in organs and tissues involved in glucose metabolism such as the pancreas, the small intestine, the fat tissue, the liver and the kidney.
- By entering these tissues, the virus may cause multiple and complex dysfunctions of glucose metabolism.
- The scientists believe it is possible that the novel coronavirus may alter glucose metabolism that could complicate the condition of pre-existing diabetes or lead to new mechanisms of disease. Given the short period of human contact with this new coronavirus, the exact mechanism by which the virus influences glucose metabolism is still unclear. Assessing routinely collected clinical data can help examine insulin secretory capacity, insulin resistance, and autoimmune antibody status to understand how COVID-19 related diabetes develops, its natural history, and best management.

12. Annular Eclipse of the Sun

Why in News?

- An annular solar eclipse will occur in India on 21 June, 2020.

Highlights:

- The annular phase will be visible from some places of northern parts of the country (parts of Rajasthan, Haryana and Uttarakhand) and it will be seen as partial solar eclipse from the rest part of the country.
- The annular phase will also be visible in Congo, Sudan, Ethiopia, Yemen, Saudi Arabia, Oman, Pakistan, and China.



Solar Eclipse:

- A solar eclipse occurs on a new moon day when the Moon comes in between the Earth and the Sun and when all the three objects are aligned.
- A solar eclipse can only take place at the phase of new moon, when the moon passes directly between the sun and Earth and its shadows fall upon Earth's surface.
- An annular solar eclipse will occur when the angular diameter of the Moon falls short of that of the Sun so that it cannot cover up the latter completely.
- As a result, a ring of the Sun's disk remains visible around the Moon.

Types of Solar Eclipses:

- Partial solar eclipses occur when the Moon only partially obscures the Sun's disk and casts only its penumbra on Earth.
- Annular solar eclipses take place when the Moon's disk is not big enough to cover the entire disk of the Sun.
- Total solar eclipses happen when the Moon completely covers the Sun, and it can only take place when the Moon is near perigee, the point of the Moon's orbit closest to Earth.
- Hybrid Solar Eclipses, also known as annular-total eclipses, are the rarest type. They occur when the same eclipse changes from an annular to a total solar eclipse, and/or vice versa, along the eclipse's path.

Why isn't a Solar Eclipse Every New Moon Night?

- Eclipses do not happen at every new moon because the moon's orbit is tilted just over 5 degrees relative to Earth's orbit around the sun.
- For this reason, the moon's shadow usually passes either above or below Earth, so a solar eclipse doesn't occur.
- But as a rule, at least twice each year (and sometimes as many as five times in a year), a new moon will align itself in just such a way to eclipse the sun. That alignment point is called a node.
- Depending on how closely the new moon approaches a node will determine whether a particular eclipse is central or partial.
- The moon's distance from the Earth will ultimately determine whether a central eclipse is total, annular or a hybrid.

Precautions:

- Eclipsed Sun should not be viewed with the naked eye, even for a very short time.

- It will cause permanent damage of the eyes leading to blindness even when the moon covers most portion of the Sun.
- Safe technique to observe the solar eclipse is either by using proper filter like aluminized Mylar, black polymer, welding glass of shade number 14 or by making projection of Sun's image on a white board by Telescope.

13. Dexamethasone

Why in News?

- The researchers from the Recovery Trial reported that Dexamethasone helps reduce death rates in certain COVID-19 patients.

Dexamethasone:

- It is a low cost, anti-inflammatory drug, commonly used to treat conditions in which the body's immune system does not function properly, and causes inflammation and tissue damage. Dexamethasone reduces the production of the chemicals that cause inflammation and also reduces the activity of the immune system by affecting the way white blood cells function. Dexamethasone falls in a category called corticosteroids, which closely mimic cortisol, the hormone naturally produced by the adrenal glands in humans.

Usage:

- It is commonly used in treatment for rheumatological inflammatory conditions: inflammations of muscles, inflammation of blood vessels, chronic arthritis, and lupus.
- It is used in lung diseases, kidney inflammation and eye inflammation, and to reduce swelling associated with tumours of the brain and spine.
- In cancer patients, it is used to treat nausea and vomiting caused by chemotherapy drugs.

Recent Findings:

- The Recovery Trial in the UK investigating dexamethasone has announced the results of the dexamethasone trial, where 2,104 enrolled patients were administered 6 mg of the drug for 10 days.
- The drug was found to have reduced deaths by one-third in ventilated patients and by one-fifth in patients receiving only oxygen.
- The drug was found to have reduced the 28-day mortality rate by 17 per cent, with a highly significant trend showing the greatest benefit among patients requiring ventilation.
- However, the study found no evidence of benefit for patients who did not require oxygen.

14. Extreme Helium Stars

Why in News?

- Detection of fluorine in hot Extreme Helium Stars solves their Evolution Mystery.

Extreme Helium Star:

- An extreme helium star or EHe is a low-mass supergiant that is almost devoid of hydrogen, the most common chemical element of the universe.
- There are 21 of them detected so far in our galaxy.
- The origin and evolution of these Hydrogen deficient objects have been shrouded in mystery.
- Their severe chemical peculiarities challenge the theory of well-accepted stellar evolution as the observed chemical composition of these stars do not match with that predicted for low mass evolved stars.

The Study:

- A study by the Indian Institute of Astrophysics (IIA), an autonomous institute of the DST, which detected the presence of singly ionised fluorine for the first time in the atmospheres of hot Extreme Helium Stars makes a strong case that the main formation of these objects involves a merger of a carbon-oxygen (CO) and a Helium (He) white dwarf.
- The research published in the Astrophysical Journal which showed fluorine abundances determined from singly ionized fluorine (F II) lines, suggest a very high enrichment of fluorine, about a factor of 100 to 10000 times higher than normal stars.
- Clues to evolution of extreme helium stars require accurate determinations of their chemical composition, and the peculiarities, if any, become very important. Fluorine plays a very crucial role in this regard to determine the actual evolutionary sequence of these hydrogen deficient objects.
- Severe fluorine enrichment w.r.t normal stars was observed in the cool EHes along-with the cooler classical hydrogen deficient stars, the RCB variables (R Coronae Borealis Stars) hinting at close evolutionary connection between them.
- By comparing the observed fluorine abundances with other abundances of the key elements, the scientists could determine the formation channels responsible for fluorine enrichment.
- The varied range of observed fluorine abundance across stars having similar atmospheric parameters points out the difference in the individual star's evolution and the ensuing nucleosynthesis.

- Particularly, the enrichment of fluorine in the atmospheres of carbon-rich EHe and absence of the same in carbon-poor EHe suggest that fluorine is profusely produced during the merger of a He-CO WD resulting in a carbon-rich EHe, whereas He-He WD merger that results in carbon-poor EHe does not account for fluorine overabundance.
- The detection of enhanced fluorine abundances in the atmospheres of hot EHe solves a decade-old mystery about their formation.
- It firmly places hot EHe in an evolutionary sequence with cool EHe and other hydrogen-deficient stars, and zeros in on the evolutionary scenario, which involves the merger of two double degenerate white dwarfs (WDs).

15. Sickle Cell Disease

Why in News?

- The Minister for Tribal Affairs, Shri Arjun Munda today emphasized on the need to create more awareness about Sickle Cell disease in the county.

Sickle Cell Disease:

- Sickle cell disease is a group of disorders that affects haemoglobin, the molecule in red blood cells that delivers oxygen to cells throughout the body.
- People with this disorder have atypical haemoglobin molecules called haemoglobin S, which can distort red blood cells into a sickle, or crescent, shape.
- Signs and symptoms of sickle cell disease usually begin in early childhood. Characteristic features of this disorder include a low number of red blood cells (anemia), repeated infections, and periodic episodes of pain.
- The signs and symptoms of sickle cell disease are caused by the sickling of red blood cells. When red blood cells sickle, they break down prematurely, which can lead to anemia.
- Anemia can cause shortness of breath, fatigue, and delayed growth and development in children. The rapid breakdown of red blood cells may also cause yellowing of the eyes and skin, which are signs of jaundice.
- Painful episodes can occur when sickled red blood cells, which are stiff and inflexible, get stuck in small blood vessels. These episodes deprive tissues and organs of oxygen-rich blood and can lead to organ damage, especially in the lungs, kidneys, spleen, and brain.
- A particularly serious complication of sickle cell disease is high blood pressure in the blood vessels that supply the lungs (pulmonary hypertension). Pulmonary hypertension occurs in about one-third of adults with sickle cell disease and can lead to heart failure.

Causes:

- Haemoglobin consists of four protein subunits, typically, two subunits called alpha-globin and two subunits called beta-globin.
- The HBB gene provides instructions for making beta-globin. Various versions of beta-globin result from different mutations in the HBB gene.
- One particular HBB gene mutation produces an abnormal version of beta-globin known as haemoglobin S (HbS). Other mutations in the HBB gene lead to additional abnormal versions of beta-globin such as hemoglobin C (HbC) and hemoglobin E (HbE).
- HBB gene mutations can also result in an unusually low level of beta-globin; this abnormality is called beta thalassemia.
- In people with sickle cell disease, at least one of the beta-globin subunits in hemoglobin is replaced with hemoglobin S.
- In sickle cell anemia, which is a common form of sickle cell disease, hemoglobin S replaces both beta-globin subunits in hemoglobin.
- In other types of sickle cell disease, just one beta-globin subunit in hemoglobin is replaced with hemoglobin S. The other beta-globin subunit is replaced with a different abnormal variant, such as hemoglobin C. For example, people with sickle-hemoglobin C (HbSC) disease have hemoglobin molecules with hemoglobin S and hemoglobin C instead of beta-globin. If mutations that produce hemoglobin S and beta thalassemia occur together, individuals have hemoglobin S-beta thalassemia (HbSBetaThal) disease.

16. Foldscope

Why in News?

- Dr. Alka Rao's group at the Institute of Microbial Technology (IMTECH), Chandigarh, in collaboration with a team of doctors from a government hospital in Haryana, have explored and validated the clinical utility of Foldscope in the diagnosis of diseases using various patient samples.

Foldscope:

- Foldscope is an affordable origami-based microscopy device composed of a series of paper clippings.
- Upon assembly, the device can hold a specimen slide for observation, and this specimen can be viewed via a mobile phone camera attached to it.

Highlights:

- The study evaluated the use of the Foldscope in the clinical diagnosis of oral and urinary tract infections and evaluated its efficacy as a motivational tool for improving oral health among school children in India.
- The study identifies that Foldscope is particularly convenient to diagnose urinary tract infection (UTI) and monitor kidney stone.
- Using this tool, one can easily monitor own-kidney stone status at home with a simple glass-slide, a Foldscope and a phone in hand. Such monitoring could perhaps avoid kidney stone reaching a painful state or surgery in recurring cases.
- The researchers qualitatively compared the Foldscope to a clinical microscope by examining five different types of clinical samples.
- Of the different types of clinical samples, the Foldscope was effective in detecting infection in dental plaque samples and urine samples. The team further analysed 31 dental plaque samples of patients aged 3–13 years and 25 urine samples of patients aged 11–62 years.
- Based on the study findings, Foldscope appeared to be capable of visualizing calcium oxalate crystals, which are a major cause of kidney stones.
- “This tool can thus be applied successfully in regions where people are more prone to kidney stones due to environmental factors such as water quality,” said Dr Rao. Taken together, the study data suggest that the Foldscope can be used as an in-house diagnostic tool and personal health monitoring tool on a routine basis due to its affordability and zero Maintenance Cost.

17. India now Faces Threat of Chinese Cyberattacks

Why in News?

- Cert-In has issued an advisory regarding a possible cyber-attack in the country.

Highlights:

- Earlier Cyber Security firm Cyfirma has warned about a potential cyberattack from China amidst the border standoff.
- The company informed CERT-In regarding the possibility of an attack by Chinese government-backed hackers based on inputs received from chat rooms on the Dark web (part of the internet that is not indexed by search engines).

Earlier Attacks:

- India has been targeted by Pakistan-backed hackers after the abrogation of Article 370.

- In 2019, CERT-In informed Parliament that over 24 websites related to central ministries and state governments were hacked till May. In November 2019, a malware was found on one of the systems of Nuclear Power Corporation of India's Kudankulam plant, alleged to be linked to North Korean agencies.

Advisory by CERT-In:

- A potential phishing attack would be carried out for extracting critical information of users via emails, SMS, and messages on social media by proliferating free COVID test messages.
- It will be done using an ID that will mimic a government organization like "ncov2019@gov.in".
- **Guidelines for users -**
 - ✓ Don't open or click on attachments in unsolicited emails.
 - ✓ Don't submit your critical personal or financial information on unknown websites or links. Encrypt or protect the sensitive document stored in the internet-facing machines to avoid potential leakage.
 - ✓ Scan for and remove suspicious email attachments.
 - ✓ Ensure the scanned attachment is its "true file type" i.e. the extension matches the file header.
 - ✓ Be aware of phishing domain, spelling errors in emails, websites and unfamiliar email senders. Beware of emails offering prizes, rewards etc.
 - ✓ Use safe browsing tools, filtering tools in your antivirus firewall and update spam filters regularly.
 - ✓ Report any unusual activity immediately to incident@cert-in.org.in with relevant logs.
- State-backed cyber-attacks have become a common weapon of retaliation for powerful countries that do not want to get into physical wars.
- The Chinese hacker groups are suspected to be involved in recent cyberattacks on Australian servers, post their support for an investigation for finding the origin of COVID-19. Hence India must be extra cautious for protecting its critical infrastructure as other countries' experience shows the scale and extent of the attacks these hackers can pose.

CERT-In:

- The Indian Computer Emergency Response Team is an office under the Ministry of Electronics and Information Technology.
- It was formed in January 2004.
- It is the nodal agency to deal with cybersecurity threats like hacking and phishing.

- It strengthens the security-related defense of the Indian Internet domain.

Phishing:

- It is a cybercrime in which a target or targets are contacted by email, telephone or text message by someone posing as a legitimate institution to lure individuals into providing sensitive data such as personally identifiable information, banking and credit card details, and passwords.

18. Gaganyaan will not be Affected by COVID Pandemic

Why in News?

- Recently, the Minister of State PMO said that the launch of India's first human space mission "Gaganyaan" will not be affected by COVID pandemic and preparation are going in the right direction.

Highlights:

- Briefing about the important achievements of Indian Space Research Organisation (ISRO) and the Department of Space over the last one year, the Minister said that
- The training of four Indian astronauts in Russia has now been resumed and the launch is scheduled to take place as planned, before the 75th anniversary of India's independence in 2022.
- To encourage private participation in ISRO activities a regulatory body called "Indian National Space Promotion & Authorization Centre (IN-SPACe)" is to be established.
- This will help provide a level playing field to private players and encourage their participation, he said.

Gaganyaan Mission:

- ISRO aims to launch its maiden Human Space Mission, Gaganyaan before the 75th anniversary of India's independence in 2022.
- Under the Gaganyaan schedule, three flights will be sent into orbit. Of the three, there will be two unmanned flights and one human spaceflight.
 - ✓ The human space flight program, called the Orbital Module will have three Indian astronauts, including a woman.
 - ✓ It will circle Earth at a low-earth-orbit at an altitude of 300-400 km from the earth for 5-7 days.

Objectives of the Mission:

- Enhancement of science and technology levels in the country
- A national project involving several institutes, academia, and industry
- Improvement of industrial growth
- Inspiring youth
- Development of technology for social benefits
- Improving international collaboration
- The payload will consist of:
 - ✓ Crew module - spacecraft carrying human beings.
 - ✓ Service module - powered by two liquid-propellant engines.
 - ✓ It will be equipped with emergency escape and emergency mission abort.

GSLV Mk III:

- Also called the LVM-3 (Launch Vehicle Mark-3) the three-stage heavy-lift launch vehicle,
- It is currently undergoing improvisation to ensure that it is human-rated i.e declared safe to transport a human being into space. Its first unmanned mission with the human-rated rocket is planned for December 2020.

19. Genes that aid and stem spread of Sars-CoV-2

Why in News?

- Using the gene-editing tool CRISPR-Cas9, scientists have traced some of the genes that either aid or stem the spread of Sars-CoV-2.

Highlights:

- The scientists snipped specific genes in cultured African green monkey cells – which are susceptible to COVID-19 – and infected those gene-edited cells with Sars-CoV-2 to identify the genes that were pro-viral or anti-viral.

Aiding genes:

- The study confirmed that the ACE2 receptor (angiotensin-converting enzyme 2) and Cathepsin L – proteins aided the virus to cause the infection.
- The genes and pathways that assist the virus in replicating include a group of proteins that help package the DNA – called the SWI/SNF chromatin remodelling complex – and components of the TGF- β (Transforming Growth Factor- Beta).
- The study also found proteins called HMGB1, which can help activate the immune system, as pro-viral.

Deterring Genes:

- The study discovered that antiviral genes such as components in histones – proteins around which the DNA winds itself to fit into a cell nucleus – deterred the virus from replicating.

Significance:

- Identification of host factors essential for infection is critical to inform mechanisms of COVID-19 pathogenesis.
- The screening of such genes can help understand how the pathogen replicates in the human body.
- It can point them towards potential treatments and vaccines that can target specific genes and cellular processes to stop the virus in its tracks.



4. ECONOMY

1. Non-profit organisations can be listed on social stock exchanges

Why in News?

- A SEBI-constituted panel on social stock exchanges has recently recommended direct listing of non-profit organisations through the issuance of bonds and a range of funding Mechanisms.

Highlights:

- The panel or working group was set up by SEBI in September 2019 under the Chairmanship of Ishaat Hussain, Director at SBI Foundation.
- The aim was to suggest possible structures and regulations for creating SSE to facilitate listing and fund-raising by social enterprises as well as voluntary organisations.
- The decision came after the Finance Minister's budget announcement in July last year about setting up such exchanges to take the capital markets closer to the masses and meet various social welfare objectives.

Recommendations:

- It has recommended allowing non-profit organisations to directly list through issuance of bonds while recommending a range of funding avenues,
- including some of the existing mechanisms such as Social Venture Funds (SVFs) under Alternative Investment Funds (AIFs).
- The group has also suggested a new minimum reporting standard for organisations that raise funds on social stock exchanges.
- The working group has also suggested that the social stock exchange can be housed within the existing national bourses (Stock Exchange) like the BSE (Bombay Stock Exchange) and the National Stock Exchange.
- Further, it has been recommended that profit social enterprises can also list on SSE with enhanced reporting requirements. To encourage, giving culture some tax incentives have also been suggested. The report suggested that COVID-19 aid fund can be set up by SSE to activate solutions such as pay-for- success bonds -
- With philanthropic foundations, CSR spenders and impact investors as outcome funders and
- With domestic banks, Non-Banking Financial Corporations (NBFCs) and impact investors as lenders.

Significance:

- SSE should foster overall sector development by creating a capacity building unit which will be responsible for encouraging the setting up of a Self-Regulatory Organization (SRO).
- This organisation will in turn bring together existing Information Repositories (IRs), in the immediate term for extending requisite support to such bourses.
- There is a great opportunity to unlock funds from donors, philanthropic foundations and CSR spenders, in the form of zero coupon zero principal bonds if they are listed on the SSE. Housing within the existing national bourses will help the SSE leverage existing infrastructure and client relationships of the exchanges to onboard investors, donors, and social enterprises.
- Solutions like COVID 19 aid fund can be particularly effective in financing the work of NPOs that are reaching help and relief to migrant workers all over the country.
- These recommendations, if implemented as a package, can result in a vibrant and supportive ecosystem, enabling the non-profit sector to realise its full potential for creating social impact.

Social Stock Exchange:

- It is a platform which allows investors to buy shares in social enterprises vetted by an official exchange. It is a novel concept in India and such a bourse is meant to serve private and non-profit sector providers by channelling greater capital to them.

Social Enterprise:

- A social enterprise is a revenue-generating business. Its primary objective is to achieve a social objective, for example, providing healthcare or clean energy.
- This in no way means that a social enterprise can't be highly profitable.
- In fact, most social enterprises look and operate like traditional businesses.
- The only catch is that the profit these entities generate is not necessarily used for payouts to stakeholders, but reinvested into their social programmes.

Not for Profit Company:

- These are the establishments that are utilized for the welfare of the community and are set up as charitable associations which operate without any motive for profit.
- Their primary objective is to furnish service to a specific class or the public at the larger picture.
- Usually, they do not produce, buy or sell commodities and may not have credit transactions.

- A non profit organisations can be registered in India as a Society, under the Registrar of Societies or as a Trust, by making a Trust deed, or as a Section 8 Company, under the Companies Act, 2013.

2. Electronics incentive schemes

Why in News?

- Three schemes approved earlier(in March), with a ₹48,000-crore outlay, to boost large-scale manufacturing of electronics in the country have been launched by the Ministry of IT and Electronics recently.

Highlights:

- **The Three Schemes are -**
 - ✓ Production Linked Incentive (outlay of nearly ₹41,000 crore),
 - ✓ Component Manufacturing Scheme (about ₹3,300 crore) and
 - ✓ Modified Electronics Manufacturing Clusters (about ₹3,800 crore).
- **Production Linked Incentive:**
 - ✓ Under the Production Linked Incentive (PLI), which is targeted at mobile phone manufacturing and specified electronic components, the government initially plans to incentivise 10 firms - five global and five local.
- **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS):**
 - ✓ The SPECS shall provide financial incentive of 25% on capital expenditure for the identified list of electronic goods, i.e., electronic components, semiconductor/ display fabrication units, Assembly, Test, Marking and Packaging (ATMP) units, specialized sub-assemblies and capital goods for manufacture of aforesaid goods.
- **Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme:**
 - ✓ The EMC 2.0 shall provide support for creation of world class infrastructure along with common facilities and amenities, including Ready Built Factory (RBF) sheds / Plug and Play facilities for attracting major global electronics manufacturers, along with their supply chains.

3. Barrier-free trade in Agriculture produce

Why in News?

- The Cabinet has approved 'The Farming Produce Trade and Commerce (Promotion and Facilitation) Ordinance, 2020'.

**Barrier-free trade
in agriculture
produce**



One India, One Agriculture Market

-  Ordinance basically aims at creating additional trading opportunities outside the APMC market yards
-  To help farmers get remunerative prices due to additional competition
-  Will help create One India, One Agriculture Market
-  To ensure golden harvests for our hard working farmers

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Highlights:

- Farmers suffer from various restrictions in marketing their produce.
- There are restrictions for farmers in selling agri-produce outside the notified APMC market yards.
- The farmers are also restricted to sell the produce only to registered licensees of the State Governments.
- Further, Barriers exist in free flow of agriculture produce between various States owing to the prevalence of various APMC legislations enacted by the State Governments.

Benefits:

- The Ordinance will create an ecosystem where the farmers and traders will enjoy freedom of choice of sale and purchase of agri-produce.
- It will also promote barrier-free inter-state and intra-state trade and commerce outside the physical premises of markets notified under State Agricultural Produce Marketing legislations.

Barrier-free trade in agriculture produce

A Historic Step to Promote Intra-state and Inter-State Trade in Agriculture



 'The Farming Produce Trade and Commerce (Promotion and Facilitation) Ordinance, 2020' approved by Union Cabinet

 **Challenges addressed**

 Restrictions in selling agri-produce outside the notified APMC market yards.

 Restriction to sell the produce only to registered licensees of the State Governments.

 Barriers in free flow of agriculture produce between various States due to multiple APMC regulations of State Governments.

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- It will open more choices for the farmer, reduce marketing costs for the farmers and help them in getting better prices.
- It will also help farmers of regions with surplus produce to get better prices and consumers of regions with shortages, lower prices.
- The ordinance also proposes an electronic trading in transaction platform for ensuring a seamless trade electronically. The farmers will not be charged any cess or levy for sale of their produce under this Act.
- Further there will be a separate dispute resolution mechanism for the farmers.

One India, One Agriculture Market:

- The ordinance basically aims at creating additional trading opportunities outside the APMC market yards to help farmers get remunerative prices due to additional competition. This will supplement the existing MSP procurement system which is providing stable income to farmers. It will certainly pave the way for creating One India, One Agriculture Market and will lay the foundation for ensuring golden harvests for farmers.

4. India's rising forex reserves amid Covid-19

Why in News?

- As per RBI, India's foreign exchange reserves surged USD 3.43 billion to a fresh all-time high of USD 493.48 billion for the week ended May 29.

Highlights:

- India's foreign exchange reserves are slated to hit the \$500 billion mark soon.
- In the month of May, forex reserves jumped by \$12.4 billion to an all-time high of \$493.48 billion (around Rs 37.30 lakh crore) for the week ended May 29.
- The level of foreign exchange reserves has steadily increased by 8,400 per cent from \$5.8 billion as of March 1991 to the current level.

What are Forex Reserves?

- Forex reserves are external assets in the form gold, SDRs (special drawing rights of the IMF) and foreign currency assets (capital inflows to the capital markets, FDI and external commercial borrowings) accumulated by India and controlled by the Reserve Bank of India.
- Foreign exchange reserves are held in support of a range of objectives like supporting and maintaining confidence in the policies for monetary and exchange rate management including the capacity to intervene in support of the national or union currency.
- It will also limit external vulnerability by maintaining foreign currency liquidity to absorb shocks during times of crisis or when access to borrowing is curtailed.

Why are Forex Reserves Rising Despite the Slowdown?

- The major reason for the rise in forex reserves is the rise in investment in foreign portfolio investors in Indian stocks and foreign direct investments (FDIs).
- Foreign investors had acquired stakes in several Indian companies in the last two months.
- FPIs have returned to the Indian markets and bought stocks worth over \$2.75 billion in the first week of June. The fall in crude oil prices has brought down the oil import bill, saving the precious foreign exchange. Similarly, overseas remittances and foreign travels have fallen steeply – down 61 per cent in April from \$12.87 billion.
- The months of May and June are expected to show further decline in dollar outflows.

What's the significance of Rising Forex Reserves?

- The rising forex reserves comforts in managing India's external and internal financial issues at a time when the economic growth is set to contract by 1.5 per cent in 2020-21.
- It's a big cushion in the event of any crisis on the economic front and enough to cover the import bill of the country for a year.
- The rising reserves have also helped the rupee to strengthen against the dollar.
- Reserves will provide a level of confidence to markets that a country can meet its external obligations and demonstrate the backing of domestic currency by external assets.

- It assists the Government in Meeting its foreign exchange needs and external debt obligations and maintain a reserve for national disasters or emergencies.

What does the RBI do with the Forex Reserves?

- The Reserve Bank functions as the custodian and manager of forex reserves, and operates within the overall policy framework agreed upon with the government.
- The RBI sells the dollar when the rupee weakens and buys the dollar when the rupee strengthens.
- Of late, the RBI has been buying dollars from the market to shore up the forex reserves.
- When the RBI mops up dollars, it releases an equal amount in the rupees.
- This excess liquidity is sterilized through issue of bonds and securities and LAF operations.

5. Reverse migration and associated problems

Why in News?

- Reverse migration can be witnessed in India, as millions of migrant workers go back to their homes as the economy has come to standstill as a result of efforts to contain the spread of the COVID-19.

Migration and Reverse Migration:

- Migration from rural to urban areas is a key in any country's development. In India's case, the surplus labour in agriculture migrates for jobs in the more productive sectors of the economy.
- However, most migrant jobs in urban areas are informal and are unable to provide social security.
- A shock such as covid-19 can put migrant workers in a vulnerable situation, in which reverse migration might seem to be the most logical coping mechanism available to them.
- The fear of losing their sources of livelihood and shelter in urban areas during a lockdown forced migrant labourers to journey home.

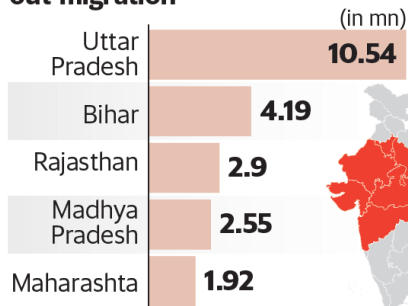
Are there Jobs for them in the Rural Economy?

- Rural economy incapable to provide jobs: Rural India's overburdened and agriculture-dependent economy with an underemployed working population is incapable of taking care of millions of workers going home.
- Also, the lack of a diversified economic structure makes it tough to create alternative sources of employment.

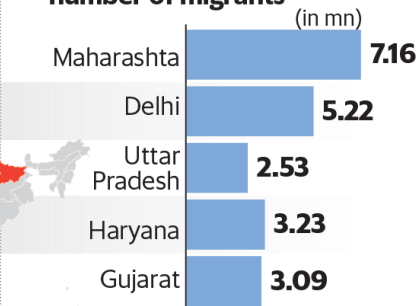
Back to base

States that see high rates of out-migration to urban areas are also the ones that have high unemployment rates. It may be difficult for states with high rural poverty rates like Uttar Pradesh and Bihar to absorb the returning migrants.

Top 5 states experiencing out-migration



Top 5 states receiving highest number of migrants



Source: Inter-State Migration India (Census 2011)

Impact on Economy:

- As India reopens the economy post the lockdown, labour shortage in urban centres has implications and can delay economic recovery, which can affect social stability.
- The construction industry, which is the nation's largest job creator, is already facing severe labour shortage.
- The productivity of the workforce involved in agriculture is lower than the urban workforce. Millions of workers going back to the rural economy could bring national productivity levels down and prolong economic recovery post covid-19.
- States that experience high rates of out-migration to urban areas are also the ones that have high rates of unemployment.
- It might be exceedingly difficult for them to absorb returning migrants.
- On the other hand, the rich states of western and south India who host migrant workers are in a hurry to send them home to avoid unrest.

Conclusion:

- It is likely that the reverse migration is temporary and will return to normal after the threat of covid-19 has subsided.
- However, the rural economy cannot match wage expectations of inter-state migrants.
- As India continues to develop, job opportunities will be created across sectors, gradually leading to more migration from rural to urban areas.
- A ray of hope in MGNREGS and MSME: Programmes such as the Mahatma Gandhi National Rural Employment Guarantee Scheme and the decision to boost micro, small, and medium enterprises can help bring the rural economy back on track.

6. Bonded Labour

Why in News?

- The Supreme Court has asked the Bihar government not to “turn a blind eye” to the problem of bonded labour in Bihar merely because the administration was focused on handling the migrant workers’ influx amid the COVID-19 lockdown.

Bonded Labour:

- The bonded labour is a specific form of forced labour in which compulsion into servitude is derived from debt.
- A person becomes a bonded labourer when their labour is demanded as a means of repayment for a loan.
- Characterized by a creditor-debtor relationship that a labourer often passes on to his family members, bonded labour is typically of an indefinite duration and involves illegal contractual stipulations.
- Bonded labourers are forced to work to repay debts their employer says they owe, and not allowed to work for anyone else.
- Not all bonded labour is forced, but most forced labour practices involving children or adults are of a bonded nature.
- A large number of children are employed as bonded labourers by the non-farming sectors like small-scale textile, firecracker, leather goods manufacturing, brick kilns and granite extraction units.

Is there any law against Bonded Labour?

- The Constitution of India under Article 23(1) prohibits ‘beggar’ and other similar forms of forced labour.
- The bonded labour system was abolished by law throughout the country by Bonded Labour System (Abolition) Act, 1976. Millions of adults and children across India are enslaved despite the enactment of the Act. Welfare and Rehabilitation of Bonded Labourers:
- To assist the State Governments in rehabilitation of identified and released bonded labourers, a Centrally Sponsored Plan Scheme for Rehabilitation of Bonded Labour has been in operation since May, 1978.
- The Central Government has revamped the Scheme as Central Sector Scheme for Rehabilitation of Bonded Labourers with effect from 17th May, 2016.
- **Central Sector Scheme for Rehabilitation of Bonded Labourer, 2016:**

- The financial assistance for rehabilitation is 100% funded by the Central Government.

Financial Assistance is Provided for Rehabilitation of:

- A rescued bonded labourer at the rate of rupees one lakh for adult male beneficiary.
- Rs. 2 lakhs for special category beneficiaries such as children including orphans or those rescued from organized & forced begging rings or forms of forced child labour and women.
- Rs. 3 lakhs in cases of bonded or forced labour involving extreme cases of deprivation or marginalization such as trans-genders, or women or children rescued from ostensible sexual exploitation such as brothels, placement agencies etc., or trafficking, or in cases of differently abled persons, or in situations where the District Magistrate deems fit.

Other Features:

- The Scheme also provides for financial assistance of Rs. 4.50 lakh per district to the States for conducting survey of bonded labourers, Rs. 1.00 Lakh for evaluatory studies and Rs. 10 Lakhs per State per annum for awareness generation.
- Immediate assistance up to Rs. 20,000/- may be provided to the rescued bonded labour by the District Administration irrespective of the status of conviction proceedings.
- It provides for creation of a Bonded Labour Rehabilitation Fund at District level by each State with a permanent corpus of at least Rs. 10 lakhs at the disposal of the District Magistrate for extending immediate help to the released Bonded Labourers.

7. Payments Infrastructure Development Fund (PIDF)

Why in News?

- The RBI has created a Payments Infrastructure Development Fund (PIDF) with an outlay of Rs. 500 Cr.

Payments Infrastructure Development Fund (PIDF):

- PIDF aims to encourage acquirers to deploy Points of Sale (PoS) infrastructure – both physical and digital modes in tier-3 to tier-6 centres and north eastern states.
- The setting of PIDF is in line with the measures proposed by the vision document on payment and settlement systems in India 2019-2021. It is also in line with the RBI's proposal to set up an Acceptance Development Fund which will be used to develop card acceptance infrastructure across small towns and cities.
- The PIDF will be governed through an Advisory Council and managed and administered by RBI.
- It will also receive recurring contributions to cover operational expenses from card-issuing banks and card networks.

- RBI will also contribute to its yearly shortfalls, if necessary.

Significance:

- Over the years, the payments ecosystem in the country has evolved with a wide range of options such as bank accounts, mobile phones, cards, etc.
- To provide further fillip to digitization of payment systems, it is necessary to give impetus to acceptance infrastructure across the country, more so in under-served areas.

8. Corona Bonds

Why in News?

- India might have a window abroad for raising funds to tackle its COVID-19 crisis. An open economy with low external debt can possibly bear the extra burden.



Need for Raising Funds from Outside:

- India could do with a stimulus shot against the ravages of coronavirus pandemic that is both sharper and bigger, and central finances can be stretched a bit considering the nature of the threat.
- The worst of this CoVID-19 crisis is still ahead of us. That means we are at a critical juncture in our response, and no window of funds should be left out of the reckoning, especially not a capital market abroad that could snap up Indian corona bonds issued in dollars.

India's Economic Conditions:

- Servicing debt in US currency has not been detrimental to India since 1991.
- During 1991 India was on the verge of an external default. However, India opened its economy to the world, gave market forces some leeway, and achieved a turnaround.
- **Cushion of Foreign Exchange reserve:**
 - ✓ If the scare of 1991 left us looking at our foreign exchange reserves as a capital cushion on the global front. The Asian Crisis of 1997 positioned this buffer as a war-chest against the potential chaos of capital flight and a rupee crash.
- Financial Inflows:
 - ✓ Financial inflows over the years, thankfully, have been robust in India.
- Currently, our central bank has over half a trillion dollars piled up, having recently mopped up billions more in an effort to reduce rupee volatility under a greenback insurge brought about by equity sales by companies such as Reliance.

- Considering the existing scenario in India, barring a shock to our currency, various estimates suggest that India can afford the burden of at least \$40 billion a neat ₹3 trillion in extra foreign debt.

Does the Global Market have an Appetite for Government Bonds?

- With global demand for low-risk paper soaring and yields dipping below zero, safe bonds that pay well could attract investors.

External debt of India:

- India's external debt so far has been modest. The country began 2020 with only about \$564 billion of it, a little more than one-fifth of gross domestic product.
- Of this, the government owed just \$110 billion, with corporate loans and non-resident deposits making up the bulk. Given its spotless payback record, India just have to price these bonds appropriately, and maybe our diaspora alone could stump up \$20 billion.

Way Ahead:

- Whether it is wise for India to raise money overseas would depend on the eventual cost of such a program. India's exports have been weak, capital inflows could prove unreliable, and if the rupee happens to slide, the plan could turn out costlier than bargained for.
- However, a go-ahead for it should go by what exactly is envisaged as a self-reliant India.
- A reversal of our economy's integration with the rest of the globe's, if trade barriers or capital controls are imposed, would turn forecasts of our external balances worrisome.
- As we learned that before 1991, imports restricted to essentials are hard to pay for with the earnings of exports that are price-sensitive, and money that cannot exit easily tends not to come in. Ultimately as far as India does not plan to close itself off, the country can safely borrow in dollars. At the very least, India can keep the option open.

9. Farmer Producer Organizations

Why in News?

- The Central Government has recently announced the formation of 10,000 Farmer Producer Organizations (FPOs).

Highlights:

- The responsibility of completing this task lies with the Small Farmers' Agribusiness Consortium (SFAC), which is also responsible for strengthening the e-NAM platform in the present circumstances.

- The vision include that farmers gather in groups, hold discussions and get trained, increase their production, diversify their crops, and discuss ways of decreasing use of pesticides.
- This is a step towards the realization of doubling farmers' income by 2024.

Farmer Producer Organizations:

- Farmers' Producer Organisation is one type of Producer Organization (PO) where the members are farmers.
- FPOs are basically the hybrids of cooperatives and private companies.
- The participation, organisation and membership pattern of these companies are more or less similar to the cooperatives.
- It deals with business activities related to the farm produce and it works for the benefit of the member producers.

Small Farmers' Agribusiness Consortium:

- Small Farmers Agribusiness Consortium is an Autonomous Society promoted by Ministry of Agriculture, Cooperation and Farmers' Welfare, Government of India.
- It was registered under Societies Registration Act XXI of 1860 on 18th January, 1994.
- The Society is governed by Board of Management which is chaired, ex-officio, by Union Minister for Agriculture and Farmers Welfare as the President.
- The Society has been entrusted with the task of implementation of National Agriculture Market Scheme on e-platform to progressively free agricultural trade and offer price discovery to farmers.
- It helps in the formation and growth of Farmer Producer Organizations (FPOs).
- It aids in improving availability of working capital and development of business activities of FPO through Equity Grant and Credit Guarantee Fund Scheme.

10. Reasons for Increase in India's FOREX Reserves

Why in News?

- India's forex reserves have crossed \$500 billion for the first time ever in the week ended June 5, 2020. India can now depend on its soaring foreign exchange reserves to tackle any crisis on the economic front.
- While the situation is gloomy on the economic front with GDP set to contract for the first time in 40 years and manufacturing activity and trade at standstill, this is one data point that India can cheer about amidst the Covid-19 pandemic.

Highlights:

- Forex reserves are external assets in the form of gold, SDRs (special drawing rights of the IMF) and foreign currency assets (capital inflows to the capital markets, FDI and external commercial borrowings) accumulated by India and controlled by the Reserve Bank of India.
- The International Monetary Fund says official foreign exchange reserves are held in support of a range of objectives like supporting and maintaining confidence in the policies for monetary and exchange rate management including the capacity to intervene in support of the national or union currency. It will also limit external vulnerability by maintaining foreign currency liquidity to absorb shocks during times of crisis or when access to borrowing is curtailed. The major reason for the rise in forex reserves is the rise in investment in foreign portfolio investors in Indian stocks and foreign direct investments (FDIs). Foreign investors had acquired stakes in several Indian companies in the last two months. While the FDI inflow stood at \$4 billion in March, it amounted to \$2.1 billion in April. The major reason for the rise in forex reserves is the rise in investment in foreign portfolio investors in Indian stocks and foreign direct investments (FDIs).
- Foreign investors had acquired stakes in several Indian companies in the last two months. While the FDI inflow stood at \$4 billion in March, it amounted to \$2.1 billion in April.
- After pulling out Rs 60,000 crore each from debt and equity segments in March, Foreign Portfolio Investments (FPIs) have now returned to the Indian markets and bought stocks worth over \$2.75 billion in the first week of June.
- Forex inflows are set to rise further and cross the \$500 billion as Reliance Industries subsidiary, Jio Platforms, has witnessed a series of foreign investments totalling Rs 97,000 crore. On the other hand, the fall in crude oil prices has brought down the oil import bill, saving precious Foreign Exchange.

11. LIC IPO

Why in News?

- The central government has started the process to launch the initial public offer (IPO) of Life Insurance Corporation (LIC) within this year.

Highlights:

- The initial public offer (IPO) is expected to be the biggest in the Indian capital markets given the size and scale of LIC, the country's oldest and largest life insurer.

- The finance ministry recently invited bids from transaction advisors, including consulting firms, investment bankers, and financial institutions, for assisting the government in the preparatory processes leading to the IPO.
- The government has also sought to appoint to two pre-IPO transaction advisors, who should have successfully managed at least one transaction of IPO of a size of at least Rs 5,000 crore, or a capital market transaction of at least Rs 15,000 crore.

The Size and Position of LIC in the Insurance Market:

- Even if the central government decides to sell 5-10 percent of its equity in LIC through an IPO, the share sale of LIC is expected to be the largest.
- The LIC's total assets had touched an all-time high of Rs 31.11 lakh crore in 2018-19, an increase of 9.4 percent.
- The LIC had realized a profit of Rs 23,621 crore from its equity investment during 2018-19, down 7.89 percent from Rs 25,646 crore in the previous year.
- The corporation had 66.24 percent market share in total first-year premium and 74.71 percent share in new policies in 2018-19.

Background of Disinvestment Roadmap:

- In the Budget 2020-21, the government had announced plans for IPO of LIC and a proposal to sell the government's equity in the stressed IDBI Bank to private, retail and institutional investors through the stock exchange.
- The government expects to raise Rs 90,000 crore through stake sale in LIC and IDBI Bank, and another Rs 1.2 lakh crore through other disinvestments.
- The government had also earlier listed the shares of General Insurance Corporation and New India Assurance through IPOs three years ago.

Benefits Expected through the IPO:

- An IPO will surely bring in transparency into affairs of LIC since it will be required to inform financial numbers and other market-related developments on time to the stock exchanges.
- Investors can also benefit from picking up equity in the insurer, which has been making underwriting profit as well as profits on its investments.
- The corporation's investment in various equity and bond instruments will also come under greater scrutiny after its lists on the exchanges.

12. Neera & Palmgur

Why in News?

- The Khadi and Village Industries Commission (KVIC) has rolled out a unique project to produce Neera and Palmgur which has huge potential to create employment in the country.

Highlights:

- The project aims at promoting Neera as a substitute to soft drinks while also creating self-employment to Adivasis and traditional trappers was launched at Dahanu in Palghar district of Maharashtra, a state with more than 50 lakh palm trees.
- KVIC distributed tool kits for extraction of Neera and making palmgur to 200 local artisans who were given 7 days training by KVIC.
- A tool kit worth Rs 15,000 comprises food grade stainless steel Kadhai, perforated moulds, canteen burners and other equipment like knives, rope and axes for extraction of Neera. The initiative will provide direct employment to 400 local traditional trappers.

Neera:

- Neera, extracted from the palm trees before sunrise, is a nutrient-rich health drink consumed in many Indian states.
- However, due to lack of institutionalized market technique, the commercial production and large scale marketing of Neera has not commenced yet.
- There are approximately 10 crore palm trees across the country. Further, a wide range of products like candies, milk chocolates, palm cola, ice-cream and traditional sweets can be produced from Neera if properly marketed. At present palmgur Neera worth Rs 500 crore is traded in the country. The turnover is likely to increase manifold with commercial production of Neera. Neera has high export potential as it is also consumed in countries like Sri Lanka, Africa, Malaysia, Indonesia, Thailand, and Myanmar. India has an abundance of palm fields in states like Maharashtra, Gujarat, Goa, Daman & Diu, Dadra and Nagar Haveli, Tamil Nadu, Uttar Pradesh and Bihar that can make India a leading producer of Neera globally.

13. National Institute of Public Finance and Policy

Why in News?

- Former Reserve Bank of India Governor, Urjit Patel has been appointed as the chairman of the National Institute of Public Finance and Policy (NIPFP).

Highlights:

- National Institute of Public Finance and Policy is an autonomous research institute under India's Ministry of Finance.
- It was founded in 1976 and is headquartered in New Delhi.
- It maintains an independent non-government character and pursues research in public policy, advising the Central government as well as states.
- It conducts research on public finance and contributes to the process of policy-making relating to public finance.
- It receives an annual grant from the Ministry of Finance and various State governments.
- The tenure of a chairman of NIPFP is four years, which can be extended further.

14. Financing for Compressed Bio-Gas plants to be brought under PSL

Why in News?

- The Ministry of Petroleum and Natural Gas has stated that the financing for Compressed Bio-Gas plants to be brought under Priority Sector Lending.



Highlights:

- The Government is in the process of including Compressed Bio-Gas under Priority Sector Lending.
- Initiative will help in providing environment friendly gaseous fuel from natural sources and provide ease in the financing of CBG Plants.
- The Central Financial Assistance or Subsidy for setting up CBG plants has been extended to 2020-21 to promote new projects.
- Bio-manure, an important by-product of CBG Plants, is also in the process of being included in Fertilizer Control Order 1985.

- This will make it easier to market and provide an opportunity for organic farming across the country as the 5000 CBG Plants are expected to produce 50 MMT Bio-manure.

SATAT Scheme:

- The 'SATAT' (Sustainable Alternative Towards Affordable Transportation) scheme on CBG was launched in October 2018.
- It is aimed at promoting Compressed Bio-Gas (CBG) as an alternative, green transport fuel for efficient management of biomass and organic waste.
- The CBG produced under SATAT can be sold to automobiles as clean fuel, and to domestic, industrial and commercial consumers which are using LPG and other fuels.
- It envisages targeting production of 15 MMT of CBG from 5000 plants by 2023.
- Oil Marketing Companies have been offered long term pricing on CBG to make projects bankable and have agreed to execute long term agreements on CBG.

Significance:

- Harnessing biofuels to generate alternative energy, including Compressed Biogas or CBG, ethanol, 2G ethanol, and biodiesel will help achieve our PM Modi's vision of reducing import dependence of oil and ensuring sustainable energy future in the country.
- The Government of India has been promoting Biofuels including CBG to increase the green-energy mix, reduce import dependence, create employment especially in semi-urban & rural areas and reduce pollution. Usage of CBG shall assist in achieving climate change goals of India as per the Paris Agreement 2015. This shall also be in line with schemes of Government of India like Swachh Bharat, Atma Nirbhar Bharat and Make in India.

Biogas:

- Biogas is a renewable, as well as a clean, source of energy.
- The gas generated through bio-digestion is non-polluting and it reduces greenhouse emissions.
- After purification, it is compressed and called CBG, which has pure methane content of over 95%.
- Compressed Bio-Gas is exactly similar to the commercially available natural gas in its composition and energy potential.
- With calorific value (~52,000 KJ/kg) and other properties similar to CNG, Compressed Bio-Gas can be used as an alternative, renewable automotive fuel.

15. End to End Paperless Exports under Turant Customs

Why in News?

- Central Board of Indirect Taxes and Customs has unveiled a Secure QR coded Shipping Bill that would be electronically sent to exporters after the Customs allows export.

Aim:

- To leverage technology to make the Customs clearance process more transparent and faster and mega reform for the ease of doing business.

Highlights:

- The Secure QR coded Shipping Bill eliminates the requirement of the exporters having to approach the Customs officers for proof of export.
- It makes the end to end Customs export process fully electronic, from the filing of the Shipping Bill to the final order to allow export.
- The electronic transmission of the Shipping Bill would do away with the present requirement to take paper printout of these documents thereby promoting Green Customs.

Significance:

- It is a step for fulfilling commitment to a Faceless, Paperless, and Contactless Customs under the umbrella of its Turant Customs programme.
- These reforms are based on enhanced use of digital technology to reduce the time and costs for the importers, exporters and other stakeholders.
- They are expected to improve India's ranking in the World Bank's Trading Across Borders parameter of its Doing Business Report.

Turant Customs Programme:

- Central Board of Indirect Taxes and Customs has launched its flagship programme Turant Customs at Bengaluru and Chennai recently.
- Importers will now get their goods cleared from Customs after a faceless assessment is done remotely by the Customs officers located outside the port of import.
- Turant Customs will benefit the importers by eliminating routine interface with the Customs officers and providing uniformity in assessment across the country.
- The start of Turant Customs at Bengaluru and Chennai will be the first phase of the All India roll out which would get completed by 31st December 2020.

16. Credit Guarantee Scheme for Sub-ordinate Debt (CGSSD)

Why in News?

- MSME Minister launched a new scheme for the distressed MSME sector called the Credit Guarantee Scheme for Sub-ordinate Debt (CGSSD).

Credit Guarantee Scheme for Sub-ordinate Debt (CGSSD):

- It is also called the 'Distressed Assets Fund–Sub-ordinate Debt for MSMEs'.
- As per the Scheme, guarantee cover worth Rs. 20,000 crores will be provided to the promoters who can take debt from the banks to further invest in their stressed MSMEs as equity.
- The scheme was announced by the Finance Minister as part of the Atmanirbhar Bharat Abhiyan.
- The scheme seeks to extend support to the promoter(s) of the operational MSMEs which are stressed and have become NPAs as on 30th April, 2020.
- Promoter(s) of the MSMEs will be given credit equal to 15% of their stake (equity plus debt) or Rs. 75 lakh whichever is lower.
- Promoter(s) in turn will infuse this amount in the MSME unit as equity and thereby enhance the liquidity and maintain the debt-equity ratio.
- 90% guarantee coverage for this sub-debt will be given under the Scheme and 10% would come from the concerned promoters. There will be a moratorium of 7 years on payment of principal whereas the maximum tenor for repayment will be 10 years.
- It is expected that this scheme would provide much-required support to around 2 lakh MSMEs and will help in reviving the economic activity in and through this sector. It will also help in protecting the livelihoods and jobs of millions of people who depend on them.

17. Product Application and Development Centre (PADC)

Why in News?

- Product Application & Development Centre (PADC) setup by Indian Oil at Paradip, Odisha inaugurated.

PADC:

- Indian Oil has set up the PADC adjacent to its refinery and petrochemicals complex.
- There are 4 laboratories in PADC namely Polymer Processing Lab, Analytical Testing Lab, Chemical Analysis Lab and Characterisation Lab.

- The Technical centre is equipped with 50 latest sophisticated polymer testing and processing equipment to cater to the needs of customers and new investors.
- PADC, Paradip is recognized as a research centre by the Department of Scientific and Industrial Research (DSIR), Ministry of Science & Technology, Govt of India.
- PADC will act as an incubation centre for new entrepreneur development in and around Odisha in the field of plastics.
- The centre will render assistance to customers and investors in product and application development for polymer finished products such as molded furniture, houseware, wovensacks for packaging cement, fertiliser, healthcare applications like baby diaper, personal protective suit, mask, etc.
- The centre will carry out testing and developmental activities for investors of Paradeep Plastic Park and other clusters like Balasore and Khurda.
- The centre will impart requisite product and process training to the prospective and budding investors including hand holding activities for plant set-up, selection of machinery and material. PADC will provide quality assurance, complaint handling, customer support, benchmarking studies, new & niche grade development and application development activities.

18. National Productivity Council

Why in News?

- The 49th Governing Council Meeting of the National Productivity Council was held under the Chairmanship of the Minister of Commerce and Industry.

National Productivity Council:

- National Productivity Council (NPC) is an autonomous body under the Department for Promotion of Industry & Internal Trade (DPIIT).
- It is a mission-oriented apex organization to promote the cause of productivity in all sectors of the Indian economy.
- It is a tri-partite non-profit organization with equal representation from the government, employers and workers' organizations, apart from technical and professional institutions including members from local productivity councils and chamber of commerce on its Governing Body.
- NPC is a constituent of the Tokyo-based Asian Productivity Organisation (APO), an Intergovernmental Body, of which the Government of India is a founder member.

Suggestions made in the Meeting:

- Sector formulation of specific action plans by NPC, especially in agriculture and logistics sectors.
- Identification of champion sectors which have the potential to drive the economy.
- Adoption of technology to increase productivity and delivering cost-effective solutions for the marginalised sector.
- Interlinking of academia and industry for the creation of a highly skilled labor force.
- Financing of specific products to support MSMEs and increase their productivity.
- National audit on security impact, etc.



5. GEOGRAPHY & ENVIRONMENT

1. Amery Ice Shelf

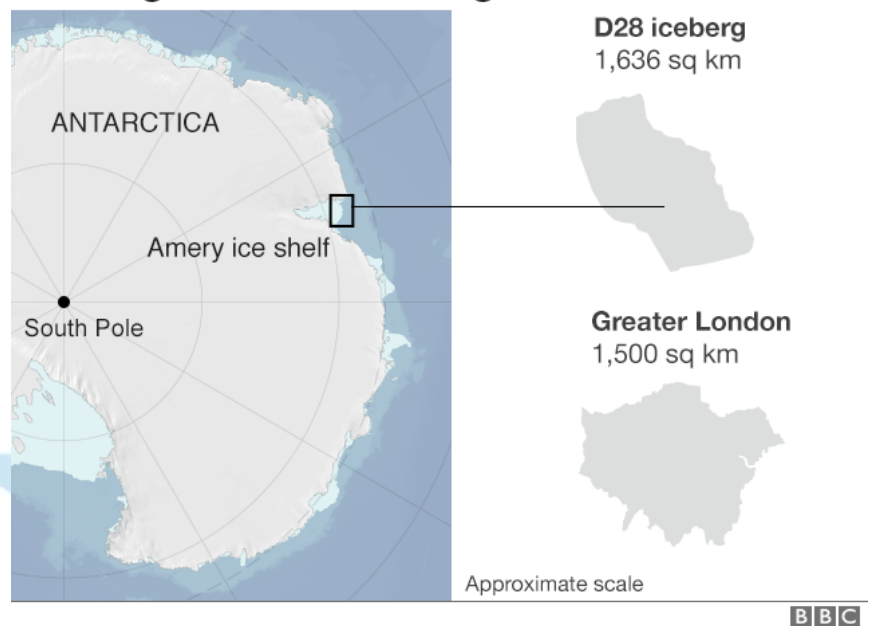
Why in News?

- The National Centre for Polar and Ocean Research has predicted an increase in the expansion of the Amery Ice Shelf boundaries in Antarctica.

Highlights:

- The prediction is made by NCPOR, Goa based on a 16-year-long satellite-based observation that covered an area of 60,000 sq km across the AIS.
- There would be a 24 percent increase in the expansion of the Amery Ice Shelf (AIS) boundaries in Antarctica by 2021 and another 24 percent by 2026 from its 2016 positions.

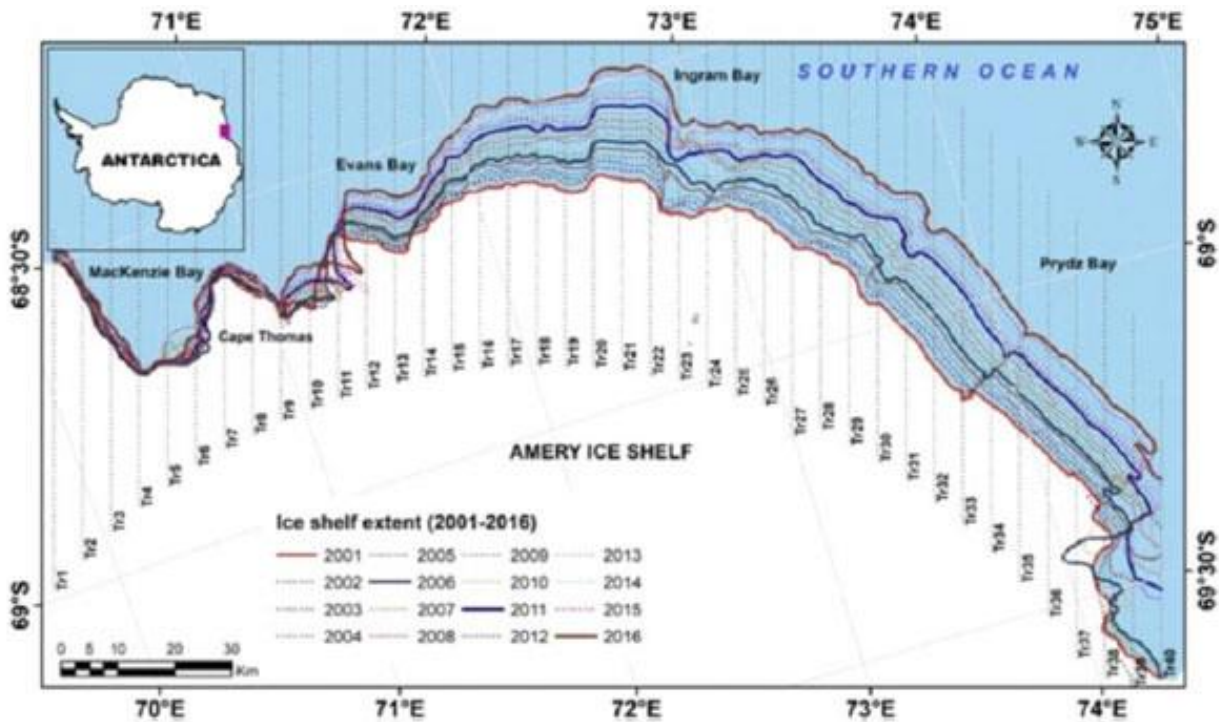
How big is the D28 iceberg?



- The scientists observed a spatio-temporal change in the ice shelf as reflected by the extension of the Pridze and Mackenzie and the extension of a 200-km stretch between Mackenzie Bay and the Sandefjord Bay.
- It becomes clear from the study that the AIS is losing its stability owing to the impact of a downstream giant glacial drainage system over the past 19 years, thereby advancing the ice shelf boundaries due to higher freezing rates than basal melting.
- NCPOR observations also revealed a critical cooling of the sea surface temperature, resulting in an advancement of the ice shelf by 88 per cent in the past 15 years.
- These changes would contribute in a major way to climate variability.

Amery Ice Shelf (AIS):

- The AIS is one of the largest glacier drainage basins in the world, located on the east coast of Antarctica.
- The Amery Ice Shelf is the third largest ice shelf in Antarctica, after the Ross Ice Shelf and the Filchner-Ronne Ice Shelf.



Ice Shelves:

- The floating sheets of ice called ‘ice shelves’ play a multi-faceted role in maintaining the stability of a glacier.
- Ice shelves connect a glacier to the landmass.
- The ice sheet mass balance, sea stratification, and bottom water formation are important parameters for the balancing of a glacier.
- Latent and sensible heat processes do play important roles here.
- The insulation of ice shelves from atmospheric forcing is dependent on a temperature gradient that the ocean cavity beneath the ice shelves provides.
- It is the pressure exerted by the ice shelves upon the ocean cavity that determines this temperature gradient.
- There is always a stress on the sea ice and ice sheets themselves play an indirect role in reducing the amplitude of the ocean swell.
- This is assisted by the freezing atmospheric temperature, which is capable of promoting a change in the morphology of ice shelves.

Significance:

- This study would help in better understanding of the ongoing changes in the ocean and atmospheric forces.

2. Speeding up Clean Energy Transition

Why in News?

- Coronavirus-related shutdowns helped slash daily global emissions of carbon dioxide by 14 percent in April. But the drop won't last, and experts estimate that annual emissions of the greenhouse gas are likely to fall only about 7 percent this year.
- Unless we make substantial changes to global economies, it will be back to normal as usual, a path that leads directly to runaway climate change.

Highlights:

- What a lot of people don't understand is that to limit warming to 1.5 degrees Celsius, we actually have to reduce emissions by around 7-8 percent every single year from now until 2030, which is what the emissions drop is likely to be this year because of the COVID-19 crisis.
- It means that we need government policy, particularly at the federal level to control pollution, because state policy can only go so far. It is assumed that renewable energy is growing so fast. But first of all, during the coronavirus pandemic, the renewable energy industry is actually doing very poorly. It's losing a lot of jobs. And secondly, we were not moving fast enough even before the coronavirus crisis, because renewable energy in the best year grew by only 1.3 percent. Right now we're at around 36-37 percent clean energy.
- That includes nuclear, hydropower and new renewables like wind, solar and geothermal. But hydropower and nuclear aren't growing.
- Nuclear supplies about 20 percent of the grid and hydro about 5 percent depending on the year. And then the rest is renewable.
- The delay and denial on climate change is a profitable enterprise for fossil fuel companies and electric utilities. The longer we wait to act on the crisis, the more money they can make because they can extract more fossil fuels from their reserves.
- People have to understand that stimulus spending is an opportunity to rebuild our economy in a way that creates good-paying jobs in the clean-energy sector that protects human health.

3. Poaching doubled during COVID-19 lockdown

Why in News?

- A recent report by TRAFFIC, a leading wildlife trade monitoring network, has recorded a significant increase in poaching in India during the over two-month-long lockdown period.

Highlights:

- The report titled “Indian wildlife amidst the COVID-19 crisis: An analysis of the status of poaching and illegal wildlife trade” was released recently.
- It points out that reports of poaching for consumption and local trade have more than doubled during COVID-19 lockdown.
- However, It mentions that there was no evidence of stockpiling of wildlife products for future trade.
- Period of analysis: The researchers analyzed compared media reports of poaching incidents in a six-week period before the lockdown (February 10 to March 22) with those from six weeks during the lockdown (March 23 to May 3)
- Based on this analysis, the report said: “Reported poaching incidences rose from 35 to 88.”
- However, it added that it remains unknown how reporting rates in the media have changed because of the lockdown.
- The report also pointed out that the number of persons arrested for poaching related cases during lockdown was higher than in pre-lockdown weeks.

Analysis of the Findings of the Report:

- A species-group comparison in the report says that the biggest increase in reported poaching was related to ungulates
- Here the percentage jumped from 22% of total reported cases during pre-lockdown, to 44% during the lockdown period.
- Ungulates are targeted mainly for meat (for self-consumption or for local trade).
- The increase is probably due to those poaching for self-consumption or those who are trying to compensate for their loss of income by making quick money through poaching.
- **Small mammals category:**
 - ✓ The second group of animals where there was a marked increase in poaching was ‘small mammals’.
 - ✓ It includes hares, porcupines, pangolins, giant squirrels, civets, monkeys, and smaller wild cats.
 - ✓ Cases against this group 17% to 25% between the pre-and lockdown periods.
- **Bird-related seizures:**
 - ✓ There was a slight decrease in the incidence of bird-related seizures, which dropped from 14% to 7% between the analysis period.

- ✓ There was less reporting of poaching and illegal trade in tortoises and freshwater turtles, with almost no seizures of these species during the lockdown period.
- Even though there are reports about pangolins being linked to the coronavirus crisis, the report states that pangolins were targeted by poachers in various parts of the country.
- Live pangolins *Manis* spp. and their scales were seized from poachers in Uttarakhand, Karnataka and Odisha.

Way Ahead:

- The outcome of this report indicates that “despite efforts by law enforcement agencies, wild animal populations in India are being subjected to additional threats during the lockdown period”
- More than doubling of reported poaching cases will place additional burdens on wildlife law enforcement agencies.
- It is imperative that wildlife law enforcement agencies are supported adequately and in a timely manner so they can control the situation.

4. Challenger Deep

Why in News?

- Kathy Sullivan has become the first woman in the history to dive to the Challenger Deep, the deepest known spot in the ocean.

Highlights:

- On June 7, astronaut and oceanographer Kathy Sullivan, who was the first American woman to walk in space in 1984, became the first woman and the fifth person in history to descend to the Challenger Deep.
- Challenger Deep is the deepest known spot in the world’s ocean in the Mariana Trench, which is seven miles below the surface of the Pacific Ocean.
- She made her descent in the two-person submersible (vehicles that can be operated underwater). The expedition aims to observe volcanic vents, identify new species and conduct the extensive mapping of the US Exclusive Economic Zone at the request of the National Oceanic and Atmospheric Administration (NOAA).

Challenger Deep:

- According to NOAA, the average depth of the ocean is about 12,100 feet and the deepest part is called the Challenger Deep, which is located below the surface of the western Pacific Ocean.

- It is approximately 36,200 feet deep.
- The British Ship HMS Challenger discovered Challenger Deep between 1872-1876.
- The first dive at Challenger Deep was made in 1960 by Lieutenant Don Walsh and Swiss scientist Jacques Piccard on a submersible.

Why are Scientists Interested in deep Ocean Areas?

- As per NOAA, most of the existing knowledge of the oceans comes from shallower waters, while deeper waters remain relatively unexplored.
- Ocean exploration is disciplined and organized and includes rigorous observations and documentation of biological, chemical, physical, geological, and archaeological aspects of the ocean.
- Finding out more about the deep ocean areas can potentially reveal new sources for medical drugs, food, energy resources and other products. Significantly, information from the deep oceans can also help to predict earthquakes and tsunamis, and help us understand how we are affecting and getting affected by the Earth's Environment.

5. Melting glaciers cool Southern Ocean

Why in News?

- Research suggests glacial melting might explain the recent decadal cooling and sea ice expansion across Antarctica's Southern Ocean.

Highlights:

- The Southern Ocean near Antarctica has never been easy to study. Its challenging conditions have placed it out of reach to all but the most intrepid explorers. Highlights:
- For climate modellers, the surface waters of the Southern Ocean provide a different kind of challenge: It doesn't behave the way they predict it would.
- In recent decades, as the world warms, the Southern Ocean's surface temperature has cooled, allowing the amount of ice that crystallizes on the surface each winter to grow.
- There are 30 or so climate models used to foresee what the world might look like as the climate changes.
- These models don't match the recent observations of surface temperature in the Southern Ocean, leaving scientists with lots of question.
- Earlier researchers had explored two possible influences driving the observed ocean trends: greenhouse gas emissions, and westerly winds — strengthened by expansion of the Antarctic ozone hole — blowing cold water northward from the continent.

- The researchers carried out the experiments with the GISS global climate model where they abruptly introduce a fixed increase in melt water around Antarctica and then record how the model responds.
- The researchers then apply the model's response to a previous climate state to estimate how the climate should react to the observed forcing.
- The results are then compared to the observational record, to see if a factor is missing. This method is called hindcasting.
- In their hindcasting, they estimate what would have happened to a pre-industrial Southern Ocean if up to 750 gigatons of meltwater were added each year.
- When this increase in glacial melt was added to the model, it led to sea surface cooling, decreases in salinity, and expansion of sea ice coverage that are consistent with observed trends in the Southern Ocean during the last few decades.
- Their model results suggest that meltwater may account for the majority of previously misunderstood Southern Ocean cooling. The model shows that a warming climate may be driving, in a counterintuitive way, more sea ice by increasing the rate of melting of Antarctica's glaciers. The paper may solve the disconnect between what was expected and what was observed in the Southern Ocean.

6. Hilsa Fish

Why in News?

- Fishermen in West Bengal are in for a pleasant surprise amid the COVID-19 gloom as they have exuded hope of a bumper yield of Hilsa, known as "maacher rani" (queen of fish).

Highlights:

- IUCN status: Least Concerned
- The Hilsa is a species of fish related to the herring, in the family Clupeidae.
- It is a very popular and sought-after food fish in the Indian Subcontinent.
- It is the national fish of Bangladesh and state symbol in the Indian states of West Bengal and Tripura. The fish contributes about 12% of the total fish production and about 1.15% of GDP in Bangladesh. Hilsa has a history of migrating to Allahabad in the Ganga river system from Bangladesh. Though it's a saltwater fish, it migrates to sweet waters of the Ganges from the Bay of Bengal.
- It travels upstream of the river during the mating seasons and returns to its natural abode after spawning.

7. Decarbonising Transport in India” project

Why in News?

- NITI Aayog in collaboration with International Transport Forum (ITF) will launch the “Decarbonising Transport in India” project on 24 June, with the intention to develop a pathway towards a low-carbon transport system for India.

Highlights:

- The “Decarbonising Transport in India” project will design a tailor-made transport emissions assessment framework for India. It will provide the government with a detailed understanding of current and future transport activity and the related CO₂ emissions as a basis for their decision-making. The India project is carried out in the wider context of the International Transport Forum’s “Decarbonising Transport” initiative. It is part of the “Decarbonising Transport in Emerging Economies” (DTEE) family of projects, which supports transport decarbonisation across different world regions. India, Argentina, Azerbaijan, and Morocco are current participants. The DTEE is a collaboration between the ITF and the Wuppertal Institute, supported by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

International Transport Forum:

- The International Transport Forum at the OECD is an intergovernmental organisation with 60 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers. ITF is the only global body that covers all transport modes. The ITF is administratively integrated with the OECD, yet politically autonomous.
- The ITF works for transport policies that improve peoples’ lives. Our mission is to foster a deeper understanding of the role of transport in economic growth, environmental sustainability and social inclusion and to raise the public profile of transport policy.
- ITF organises global dialogue for better transport. It acts as a platform for discussion and pre-negotiation of policy issues across all transport modes. We analyse trends, share knowledge and promote exchange among transport decision-makers and civil society.
- Background: The International Transport Forum was created on 18 May 2006 by ministers from 43 countries. The roots of ITF go back to 1953, when 16 European nations established the European Conference of Ministers of Transport (ECMT), an international organisation by treaty, to “coordinate and rationalise European inland transport of international importance”. The ECMT remains the legal core of today’s International Transport Forum.

8. Collaboration to Develop Green Energy Solutions

Why in News?

- Researchers from the Indian Institute of Technology Madras are collaborating with their counterparts in Germany to develop new materials for green energy solutions.

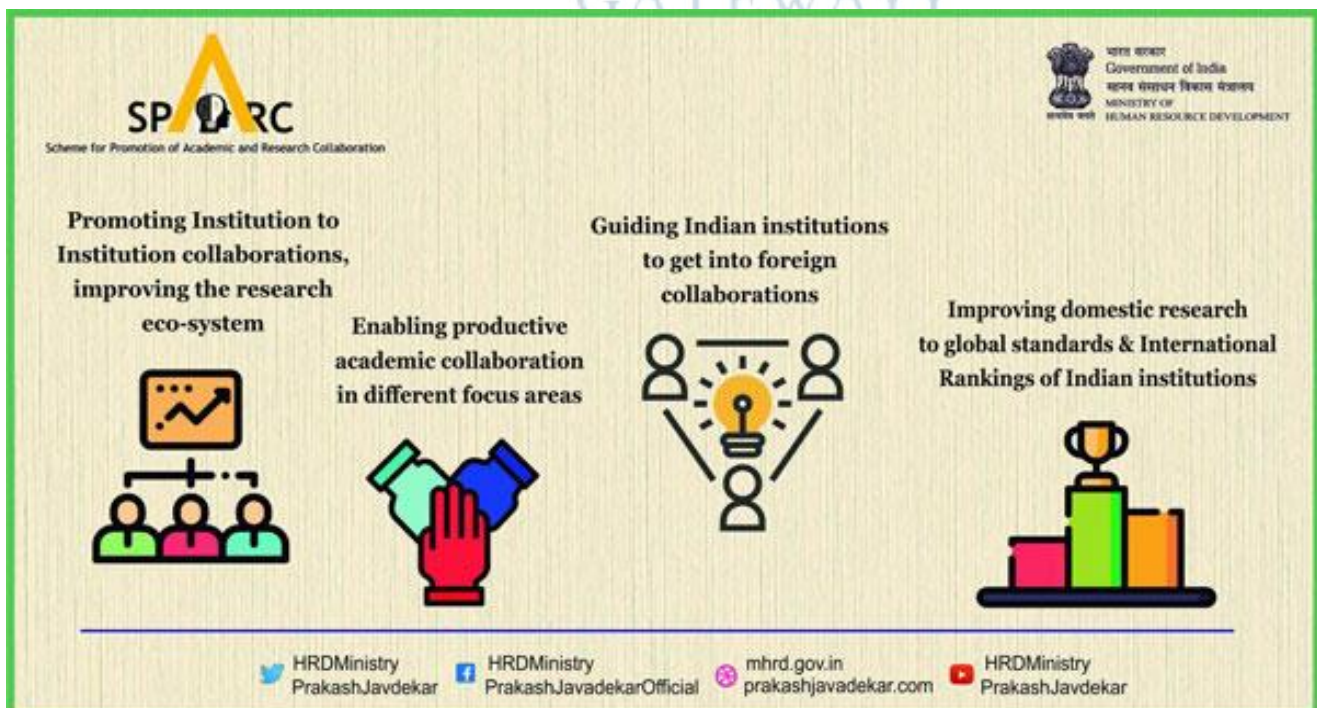
Aim:

- To develop alternative technologies to produce green hydrogen in anticipation of the transition to a hydrogen-based economy.

Highlights:

- The project is under SPARC, an initiative of the Ministry of Human Resource Development.
- The conventional methods of generating hydrogen result in a large quantity of carbon dioxide, a greenhouse gas that imposed serious environmental concerns.
- Whereas electrochemical splitting of water, called Water Electrolysis, is a clean, facile, and highly efficient technology for large-scale production of high-purity H₂.
- The international collaboration aims to develop novel low-cost electrocatalysts for hydrogen evolution reactions.
- The team is working to broaden the understanding of advanced electrocatalysts with the potential to transform lab-scale research to deployable reactors/devices.

Scheme for Promotion of Academic and Research Collaboration (SPARC):



- SPARC is an initiative of the Ministry of Human Resource Development that aims at improving the research ecosystem of India's Higher Educational Institutions by facilitating academic and research collaborations between Indian Institutions and the best institutions in the world.
- The Government in August 2018 had sanctioned the scheme at a total cost of Rs. 418 Crores.
- Indian Institute of Technology Kharagpur is the National Coordinating Institute to implement the SPARC programme.

Expected Outcome:

- Strong research collaboration between Indian Research groups with the top research group in the leading Universities of the world in the cutting-edge areas of science or with direct social relevance to mankind, specifically India.
- A large number of high-quality research publications.
- Solutions to key national and international problems.
- Development of niche courses, high-quality textbooks and research monographs.
- Imbibing of best practices from top international academicians and researchers.
- Strong bilateral co-operation, and improved world reputation and ranking of Indian Institutions.

9. Role of ancient algae in building a healthy global marine ecosystem

Why in News?

- A study of a microscopic ancient marine algae (Coccolithophores) led by the NCPOR has found that there is a decrease in the concentration of oceanic calcium carbonate (CaCO_3) in the Southern Indian ocean.

Highlights:

- This decrease in CaCO_3 is attributed to the increase in the concentration of another single-celled algae known as diatoms.
- This, in turn, will affect the growth and skeleton structure of coccolithophores, with potential significance for the world ocean ecosystem.

Coccolithophores:

- Coccolithophores are single-celled algae living in the upper layers of the world's oceans.
- They have been playing a key role in marine ecosystems and the global carbon cycle for millions of years.

- Coccolithophores calcify marine phytoplankton that produces up to 40% of open ocean calcium carbonate and responsible for 20% of the global net marine primary productivity.
- Coccolithophores build exoskeletons from individual CaCO_3 plates consisting of chalk and seashells building the tiny plates on their exterior.
- Though carbon dioxide is produced during the formation of these plates, coccolithophores help in removing it from the atmosphere and ocean by consuming it during photosynthesis. At equilibrium, coccolithophores absorb more carbon dioxide than they produce, which is beneficial for the ocean ecosystem.

The Study:

- The research team has revealed that the abundance and diversity enrichment of coccolithophores in the southern Indian Ocean is highly dependent on time and influenced by various environmental factors such as silicate concentrations, calcium carbonate concentration, diatom abundance, light intensity and availability of macro and possibly micronutrient concentrations.
- The research team's analysis revealed that the reduction of coccolithophore diversity in the early summer and late summer periods is due to an increase in the presence of diatom algae, which occurs after sea ice breakdown with climate change and ocean acidification, and increases the silicate concentration in the waters of the Southern Ocean.
- The scientists also analyzed the maximum coccolithophore diversity during mid-summer in the Subtropical Zone (STZ) and Sub-Antarctic Zone (SAZ), which is controlled by elevated silicate, low temperature, and low salinity conditions.
- Scientists found that the biogeographic boundaries of coccolithophores in the southern Indian Ocean are highly variable, controlled by environmental factors in early and mid-austral summer, and grazing pressure in late austral summer.
- Also, physical forcing may play an important role in the transport of coccoliths and coccospheres at high latitudes, indicating that the southward extension of coccolithophores is important and may occur for short periods during hot summer.
- The results of the study point to climate change as a major reason for the altered coccolithophore calcification rate. Different environmental factors and the ability of the species to adapt to those environmental changes would ultimately determine the future coccolithophore calcite production.
- These investigations are important for future intervention to bring positive changes in the marine ecosystem and global carbon cycle.

10. Paleoclimatic history of Indus river

Why in News?

- Researchers from Wadia Institute of Himalayan Geology have traced the paleoclimatic history of the Indus River in Ladakh Himalaya.

Highlights:

- They studied the discharge during periods in which the river experienced an increase in land elevation, due to the deposition of sediment and incision of the Indus river.
- They observed that the aggradation in the Himalayan rivers occurred in glacial-interglacial transient warm climatic conditions when the sediment budget in the rivers increased just after the glacial events.
- It shows that aggradation (deposition) took place in the Indus River when sediment to water ratio was high. Incision (erosion) initiated when sediment to water ratio reduced during post-glacial climatically wet phase (early Holocene).

Indus River:

- The Indus River is one of the longest rivers in Asia which flows through western Tibet, India (Ladakh) and Pakistan.
- Originating in the Tibetan Plateau in the vicinity of Lake Manasarovar, the river runs a course through the Ladakh region of India, towards Gilgit-Baltistan and then flows south along the entire length of Pakistan to merge into the Arabian Sea near the port city of Karachi in Sindh.
- Its estimated annual flow is twice that of the Nile River and three times that of the Tigris and Euphrates rivers combined, making it one of the largest rivers in the world in terms of annual flow.
- The Zaskar is its left bank tributary in Ladakh. In the plains, its left bank tributary is the Panjnad which itself has five major tributaries: the Chenab, Jhelum, the Ravi, the Beas, and the Sutlej.

What is Palaeoclimatology?

- Palaeoclimatology is the study of previous climates that have existed during Earth's different geologic ages.
- Paleoclimatologists try to identify the causes of climate changes that have happened in the past to better understand our present and future climate.
- The data is derived from natural sources such as tree rings, ice cores, corals, and ocean and lake sediments, to interpret paleoclimate.

11. Jungle Fowl

Why in News?

- A recent study by scientists has revealed new details about the earliest domestication of chicken from the Jungle Fowl.

Jungle Fowl:

- The DNA sequencing of 863 genomes has shown the first domestication of chicken occurred in southwestern China, northern Thailand and Myanmar.
- The study involved sequencing of genomes from all four species of the genus Gallus, five subspecies of Red Jungle Fowl and various domestic chicken breeds collected worldwide.
- It revealed single domestication from Red Jungle Fowl sub-species Gallus spadiceous.
- The study also demonstrated that all five Red Jungle Fowl sub-species were genetically differentiated from each other approximately 50,000 years ago much earlier than domestication. The results contradicted the earlier claim that chickens were domesticated in northern China and the Indus Valley.

Domestication of Chicken:

- The question of domestication of chickens has intrigued scientists for centuries and has been the subject of debate.
- Charles Darwin postulated that chickens were domesticated around 4,000 B.C. from a single ancestor, Red Jungle Fowl in the Indus Valley.
- An important study published earlier from Uppsala University claimed the Grey Jungle Fowl had contributed to chicken domestication.
- With this, a couple of studies from India, China and other South-Asian countries have argued the monophyletic origin of chicken.

12. Last Glacial Maximum

Why in News?

- Researchers analysed simulations of this past climate and predicted that the ongoing climate change could reawaken an ancient climate pattern of the Indian Ocean Region (IOR).

The Last Glacial Maximum:

- The Last Glacial Maximum (LGM) was the most recent time during the Last Glacial Period that ice sheets were at their greatest extent.

- Vast ice sheets covered much of North America, Northern Europe, and Asia and profoundly affected Earth's climate by causing drought, desertification, and a large drop in sea levels.
- Growth of ice sheets commenced 33,000 years ago and maximum coverage was between 26,500 years and 19–20,000 years ago, when deglaciation commenced in the Northern Hemisphere.
- It caused an abrupt rise in sea level.

Shells predict IOR Climate Variability:

- By studying microscopic zooplankton called foraminifera, the team had published a paper in 2019 which first found evidence from the past of an Indian Ocean El Niño.
- Foraminifera builds a calcium carbonate shell, and studying these can tell us about the properties of the water in which they lived.
- The team measured multiple individual shells of foraminifera from ocean sediment cores and was able to reconstruct the sea surface temperature conditions of the past.
- The Indian Ocean has the capacity to harbour much larger climate variability than observed during the last few decades or a century.

Lessons to learn:

- There are many lessons to be learnt from this cooler period about our warmer future.
- As it is, under present-day conditions, changes in the Indian Ocean Dipole and the El Niño–Southern Oscillation strongly affect Indian Monsoon variability from year to year.
- If the hypothesized 'equatorial mode' emerges in the near future, it will pose another source of uncertainty in rainfall prediction and will likely amplify swings in monsoon rainfall.
- It could bring more frequent droughts to East Africa and southern India and increased rainfall over Indonesia.

6. INTERNATIONAL RELATIONS

1. Trump proposes extension of G7 group

Why in News?

- Calling the existing Group of Seven group outdated US President Donald Trump said that he wanted to include India, Russia, South Korea, and Australia in the group.

Highlights:

- Trump has deferred 2020's G-7 summit scheduled to be held on June in US.
- The G-7 countries are Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.
- It is an intergovernmental organisation that was formed in 1975 by the top economies of the time as an informal forum to discuss pressing world issues.
- Canada joined the group in 1976, and the European Union began attending in 1977.
- Initially formed as an effort by the US and its allies to discuss economic issues, the G-7 forum has deliberated about several challenges over the decades, such as the oil crashes of the 1970s, and many pressing issues such as financial crises, terrorism, arms control, and drug trafficking.



- The G-7 was known as the ‘G-8’ for several years after the original seven were joined by Russia in 1997.
- The Group returned to being called G-7 after Russia was expelled as a member in 2014 following the latter’s annexation of the Crimea region of Ukraine.
- The G-7 does not have a formal constitution or a fixed headquarters.
- The decisions taken by leaders during annual summits are non-binding.
- The rise of India, China, and Brazil over the past few decades has reduced the G-7’s relevance, whose share in global GDP has now fallen to around 40%.

G-7 and G-20:

- The G-20 is a larger group of countries, which also includes G7 members.
- The G-20 was formed in 1999, in response to a felt need to bring more countries on board to address global economic concerns.
- Apart from the G-7 countries, the G-20 comprises Argentina, Australia, Brazil, China, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa, South Korea, and Turkey.
- Together, the G-20 countries make up around 80% of the world’s economy.
- As opposed to the G-7, which discusses a broad range of issues, deliberations at the G-20 are confined to those concerning the global economy and financial markets.
- India is slated to host a G-20 summit in 2022.

2. U.K. moots ‘5G club’ to keep out Huawei

Why in News?

- Britain has recently said that it was pushing the U.S. to form a club of 10 nations that could develop its own 5G technology and reduce dependence on Huawei.

Highlights:

- Britain is proposing a “D10” club of democratic partners that groups the G7 nations with Australia and the Asian technology leaders South Korea and India.
- It said one of the options involves channelling investments into existing telecommunication companies within the 10 member states.
- The move is aimed to search for an alternative to Huawei.

India and 5-G:

- The evolution of 5G is based on multiple pillars — it starts with enhanced Mobile Broadband (eMBB) to provide the much-needed capacity for delivery of high-speed data to the masses.

- eMBB is the most important building block of 5G as it also solves the basic need of capacity.
- When compared to 4G, 5G offers much higher capacity, ultra-low latency, very high speeds and better security.
- In fact, 5G can even offer fibre-like speeds, wirelessly, on millimetre wave frequency.
- India's is the second biggest smartphone market in the world, leading to a meteoric rise of data consumption – from 20 million terabytes in 2017 to 55 million terabytes in 2019.
- India consumes more than 11 GB/user/month – the highest in the world.
- Existing LTE infrastructure will struggle to address the growing demand for data, leading to perpetually choked networks and resulting in poor customer experience.
- New macro cell-site rollout is virtually impossible. As such, network resources are strained with significant impact on consumer experience since the 4G spectrum and infrastructure can do only so much.

Significance of 5-G:

- 5G powers the technology driving smart cities.
- As India moves ahead with its Smart City vision, it must leverage 5G to ensure that the underlying technology remains relevant for a longer time.
- As such, the case for immediate roll out of 5G networks in India is compelling.
- It is no longer a choice but a pre-requisite for the Country's Growth and Development.

3. Comparing India, China outreach in Africa

Why in News?

- As Asia's two largest economies and long-standing partners of Africa, India and China have increased their outreach to Africa through medical assistance amid COVID-19 pandemic.

Highlights:

- The COVID-19 pandemic has been a great leveller, as it has affected almost all the regions of the world adversely.
- But its effects stand to be devastating particularly in Africa, where economic and public health conditions are extremely vulnerable.
- Although African countries moved quickly to curb the initial spread, they are still woefully ill-equipped to cope with a public health emergency of such magnitude due to shortages of masks, ventilators, and even basic necessities such as soap and water.

- Such conditions have meant that Africa's cycle of chronic external aid dependence continues. In this backdrop efforts of India and China are directed to fill a part of the growing African need at a time when not many others have stepped in to help.

Beijing's Donation Diplomacy:

- **China being Africa's largest Trading Partner:** Was quick to signal its intent to help Africa cope with the pandemic.
 - ✓ It dispatched medical protective equipment, testing kits, ventilators, and medical masks to several African countries.
 - ✓ The primary motive of such donations has been to raise Beijing's profile as a leading provider of humanitarian assistance and "public goods" in the global public health sector.
- China's billionaire philanthropy was also in full display when tech founder Jack Ma donated three rounds of anti-coronavirus supplies.
 - ✓ Chinese embassies across Africa have taken the lead by coordinating both public and private donations to local stakeholders.
 - ✓ This continues despite there having a major concern about sub-optimal quality of China's medical supplies and its deputing of medical experts.
- **Three Immediate Objectives of Beijing's 'Donation diplomacy' in Africa:**
 - ✓ Shift the focus away from talking about the origins of the virus in Wuhan,
 - ✓ Build goodwill overseas, and
 - ✓ Establish an image makeover.
- Widespread backlash: For the most part, it succeeded in achieving these ends until China faced widespread backlash over the ill-treatment of African nationals in Guangzhou city.
- The issue quickly grew into a full-blown political crisis for Beijing.
- Beijing's advantage in Africa - But China has been successful in controlling the Guangzhou narrative due to the depth of its political influence in Africa.
 - ✓ It is no secret that China relies heavily on diplomatic support and cooperation from African countries on key issues in multilateral fora.
 - ✓ For example, Beijing used African support for securing a win for Chinese candidates as the head of Food and Agriculture Organization (FAO) and in the World Health Organization (WHO).
- On Africa's part, the problem lies in the deep disjuncture and credibility gap between Africa's governing class, the people, the media and civil society.

- Overall, China's donation diplomacy towards Africa during COVID-19 has received mixed reactions, but Beijing's advantage lies in its economic heft and political influence in Africa.

New Delhi's focus:

- For India, the pandemic presents an opportunity to demonstrate its willingness and capacity to shoulder more responsibility.
- A responsible and reliable global stakeholder: The fact that even with limited resources, India can fight the virus at home while reaching out to developing countries in need is testament to India's status as a responsible and reliable global stakeholder.
- Advantage in Africa: Nowhere has India's developmental outreach been more evident than in Africa with the continent occupying a central place in Indian government's foreign and economic policy in the last six years.
 - ✓ Africa has been the focus of India's development assistance and also diplomatic outreach, as evident in plans to open 18 new embassies.
 - ✓ These efforts have been supplemented by an improved record of Indian project implementation in Africa.
 - ✓ India's role as 'the pharmacy of the world', as the supplier of low-cost, generic medicines is widely acknowledged. Pharmaceutical products along with refined petroleum products account for 40% of India's total exports to African markets.
 - ✓ Across Africa, there is a keen interest to understand the developments and best practices in India because the two share similar socioeconomic and developmental challenges.
 - ✓ There is also growing interest in research and development in drugs and vaccines. A few African countries such as Mauritius are pushing for health-care partnerships in traditional medicines and Ayurveda for boosting immunity.
- During COVID: India is sending consignments of essential medicines, including hydroxychloroquine (HCQ) and paracetamol, to 25 African countries in addition to doctors and paramedics at a total cost of around ₹600 million (\$7.9 million) on a commercial and grant basis.
 - ✓ The Indian community, especially in East African countries, has also been playing a crucial role in helping spread awareness.
 - ✓ Prominent Indian businessmen and companies in Nigeria and Kenya have donated money to the respective national emergency response funds.
 - ✓ Gurdwaras and temples in Africa have fed thousands of families by setting up community kitchens, helplines for seniors and distributing disinfectants and sanitisers.

- e-ITEC COVID-19: A timely initiative has been the e-ITEC COVID-19 management strategies training webinars exclusively aimed at training health-care professionals from Africa and the South Asian Association for Regional Cooperation (SAARC) nations.

Significant differences in the approaches of India and China:

- **For China, three aspects are critical:**
 - ✓ money, political influence and elite level wealth creation;
 - ✓ strong state-to-state relations as opposed to people-to-people ties; and
 - ✓ hard-infrastructure projects and resource extraction.
- **India's approach on the other hand** is one that focuses on building local capacities and an equal partnership with Africans and not merely with African elites concerned.
 - ✓ As these two powers rise in Africa, their two distinct models will come under even greater scrutiny. And both New Delhi and Beijing might find that they need to adapt to the rising aspirations of the African continent.

4. Multilateralism to shore up Indo-Pacific

Why in News?

- At a time when the focus of the international community is on public health and the economic response to the coronavirus pandemic, one should also continue reflecting on the concept of the Indo-Pacific and see how it can best serve regional stability at a time of heightened tensions.

Highlights:

- National security is multi-dimensional: Our national security depends not only on traditional security policies but also on our ability to foster multilateralism as well as the blue economy and environmental protection.
- Traditional security policies, including the exchange of information and military cooperation against traditional and non-traditional threats, have in no way lost their relevance in a COVID-19 world.
- The current crisis has revealed the assertion of power politics: This is likely to have a negative impact on territorial disputes and international law, as the recent tensions in the South China Sea have shown.
- The tensions between the United States and China have been revived: Accentuating regional faultlines and urging countries to take sides.
- Assertive politics would go against the objective of multipolar Asia in the multipolar world.

India-France Relations in this Backdrop:

- In this tumultuous context, France and India, as two nations that cherish their strategic autonomy, are committed to deepening their partnership.
- France and India have actually upgraded their naval interoperability through the organisation of the first-ever joint patrol off Reunion Island and the Mozambique Channel.

France's Indo-Pacific strategy:

- Joining and supporting regional organisations and mechanisms is a pillar of France's Indo-Pacific strategy.
- France is a candidate for full-fledged membership of the IORA, it supports the centrality of the ASEAN, and is committed to seizing the opportunities offered by other multilateral frameworks, such as the Asia-Europe Meeting, or the Indian Ocean Naval Symposium, which France is chairing for a two-year term.
- France sees it as an opportunity to increase regional cooperation.
- "Choose La Réunion Summit": The key message was the blue economy and environmental protection should also be at the centre of our Indo-Pacific strategies.
- True components of a long-term agenda for the Indo-Pacific: act "for something and not against somebody".
- The French Development Agency (AFD) signed a Memorandum of Understanding with the Indian Ocean Rim Association for "Strengthening the Capacities of IORA in Promoting the Blue Economy and Fisheries Management".

Need of the Hour:

- Multilateralism, including in its regional dimension, regionalism, is all the more necessary since the Indo-Pacific is characterised by limited political integration and more intensely competing ideological narratives in the wake of public health crises.
- Multilateralism is a tool that can help countries defuse tensions and build common understandings of shared challenges.
- Checking factors that have the potential to damage the social fabric of the people: Inequalities within societies, marginalisation of some coastal populations, and vulnerability to climate change may well be aggravated in the Indo-Pacific by short- and long-term factors, ranging from the COVID-19 crisis, uncooperative appropriation of natural resources, as well as climate change, which creates environmental insecurity.

Indo Pacific:

- This concept is a shift from the Asia-Pacific (including North-east Asia, Southeast Asia and Oceania), where India did not have a major role to play.
- The Asia-Pacific Economic Cooperation (APEC) launched in 1989 did not include India, as did the Asia-Europe Meeting (ASEM) launched in 1996, though India was admitted into ASEM in 2006. The acceptance of the Indo-Pacific as a single strategic construct linking the contiguous waters of the western Pacific and the Indian Ocean has gained currency in the last few years with the shift in the geopolitical center of gravity to this region.
- The Indo-Pacific, sometimes known as the Indo-West Pacific or Indo-Pacific Asia, is a biogeographic region of Earth's seas, comprising the tropical waters of the Indian Ocean, the western and central Pacific Ocean, and the seas connecting the two in the general area of Indonesia. It does not include the temperate and polar regions of the Indian and Pacific oceans, nor the Tropical Eastern Pacific, along the Pacific coast of the Americas, which is also a distinct marine realm.

Indian Ocean Rim Association:

- The Indian Ocean Rim Association (IORA) is a dynamic inter-governmental organisation which was established on 7 March 1997.
- It is aimed at strengthening regional cooperation and sustainable development within the Indian Ocean region through its 22 Member States and 10 Dialogue Partners.
- It includes a spectrum of issues including fisheries, aquaculture, seafood products, seaport and shipping, maritime connectivity, port management and operations, marine spatial planning, ocean forecasting, blue carbon, and renewable energy.

5. India to boost infrastructure in areas along China border

Why in News?

- To ramp up infrastructure along the China border, the Ministry of Home Affairs (MHA) has decided to spend 10% funds of Border Area Development Programme (BADP) on border projects in Ladakh, Arunachal Pradesh, Himachal Pradesh, Uttarakhand and Sikkim.

Highlights:

- The (BADP) has been allocated Rs. 784 crore in the 2020-21 fiscal and the money is distributed to the border States and Union Territories (UTs) depending on various criteria such as the length of the international border and population.

- In 2019-20, Rs. 825 crore was granted for the scheme.

Guidelines approved by Ministry of Home Affairs:

- Preference to strategic areas: The projects for developing strategically important villages and towns in border areas that have been identified by the border guarding forces, will be given priority.
- The forces could later on be asked to conduct the Social Audit of the infrastructure created.
- Around Rs.78.4 crore (10%) has been parked for projects in areas inhabited along the 3,488 km China border.
- It said that 10% funds would be reserved as an incentive for the better performing States.
- Out of the remaining 638.2 crore, the northeastern States- Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim would get -- 255.28 crore or 40% of the remaining 80% funds.
- Around 382.9 crore or 60% funds would be allocated to Bihar, Gujarat, Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, West Bengal and Union Territories Jammu and Kashmir and Ladakh, the guidelines.
- Construction of roads, bridges, culverts, primary schools, health infrastructure, playfields, irrigation works, mini-stadiums etc. can be undertaken within 10 km of the border from the BADP funds.
- No NGO or private institution could be hired for infrastructure related work.
- The BADP, initially started in 1980 for the western border, has over the years expanded to cover 396 blocks of 111 border districts in 16 States and two UTs.

Significance of Infrastructure Creation:

- It helps integrate these areas with the hinterland.
- It creates a positive perception of care by the country
- It encourages people to stay on in the border areas leading to safe and secure borders.
- It helps in augmenting storage, logistics and manoeuvrability of forces.

Border Area Development Program:

- The Department of Border Management, Ministry of Home Affairs has been implementing the Border Area Development Programme (BADP) through the State Governments as part of a comprehensive approach to Border Management.
- BADP was initiated in the border areas of the western region during that Seventh Five Year Plan (1985-90) period but with time it's scope has expanded to cover 16 states.
- **The programme aims**

- to meet the special development needs of the people living in remote and inaccessible areas situated near the international border
- to saturate the border areas with the essential infrastructure through convergence of Central/State/BADP/Local schemes and participatory approach.

Social Audit:

- It is the critical stock taking of any programme or scheme by the community with active involvement of the primary stakeholders.
- It includes an audit of the quality of works being executed at different levels along with the details of disbursements made, the number of labourers employed and materials used.
- The people in coordination with local administration generally conducts social audit.
- The basic objective of social audit is to ensure public accountability in the implementation of projects, laws and policies.

6. Philippines' U-turn on U.S. pact

Why in News?

- Security issues in the disputed South China Sea convinced the Philippines to delay quitting the Visiting Forces Agreement, a key US military pact.

Highlights:

- The Philippines President Rodrigo Duterte announced that the country had suspended plans to cancel the Visiting Forces Agreement, a deal that is important to Washington's moves to counter Beijing's rising regional power.
- The Philippines, a long-term US ally and its former colony, has drawn closer to China in search of trade and investment, sparking concerns of the US.
- Since taking power in 2016, Mr. Duterte has moved closer to Beijing, but has faced push back from the Philippine public and concern in the military wary of China's territorial ambitions in the disputed South China Sea.

Visiting Forces Agreement:

- A visiting force agreement (VFA) is an agreement between a country and a foreign nation having military forces visiting that country.
- The US military has the largest foreign presence and therefore accounts for most VFAs.
- The Philippines–United States Visiting Forces Agreement is a bilateral visiting forces agreement between the countries.

- The agreements came into force on May 27, 1999, upon ratification by the Senate of the Philippines.
- On February 11, 2020, the Philippine government officially notified the U.S. that it would be terminating the VFA.
- However, on June 2, the Philippine government decided on suspending its termination.

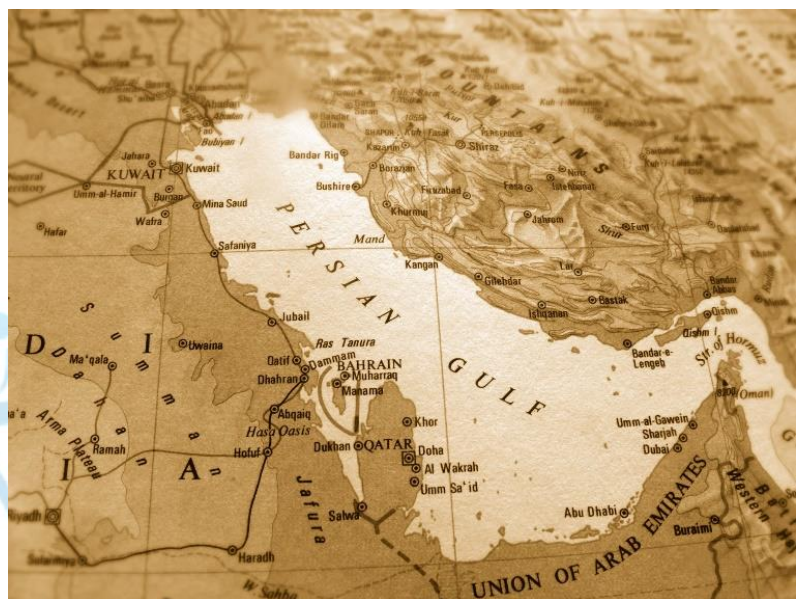
7. Barrier-free trade in Agriculture produce

Why in News?

- India's interests would be best served if stability in the Persian Gulf littoral region is ensured properly.

Equations in the Persian Gulf Region:

- The lands around the Persian Gulf are shared by eight countries, all of which are members of the UN.
- These countries include Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.
- There is a commonality of interest among these countries in being major producers of crude oil and natural gas, and thereby contributing critically to the global economy and to their own prosperity.
- This factor has added to their geopolitical significance. At the same time, turbulence has often characterized their inter se political relations.



Background:

- For eight decades prior to 1970, The Persian Gulf was a closely guarded British lake, which was administered in good measure by imperial civil servants from India.
- When that era ended, regional players sought to assert themselves. Eg
 - ✓ Imperatives of rivalry and cooperation became evident and the upshot of all these cross-currents is that the logic of Saudi-Iranian cooperation is being undercut by psychological, nationalistic, and prestige factors, which are likely to persist for a long time.'

- ✓ The Nixon and the Carter Doctrines were the logical outcome to ensure American hegemony.
- ✓ An early effort for collective security, attempted in a conference in Muscat in 1975, was thwarted by Baathist Iraq.
- The Iranian Revolution put an end to the Twin Pillar approach and disturbed the strategic balance.
- The Iraq-Iran War enhanced U.S. interests and role. Ultimately, it was left to the Security Council through Resolution 598 (1987) to explore ‘measures to enhance the security and stability in the region’.

Ensuring the framework for Stability and Security in the Region:

- Any framework for stability and security in the region needs to answer a set of questions:
 - ✓ security for whom, by whom, against whom, for what purpose?
 - ✓ Is the requirement in local, regional, or global terms?
 - ✓ Does it require an extra-regional agency?
- Saudi scholar’s remark in the 1990s said that ‘Gulf regional security was an external issue long before it was an issue among the Gulf States themselves.’
- The essential ingredients for ensuring security through a framework needs to include :
 - ✓ conditions of peace and stability in individual littoral states;
 - ✓ freedom to all states of the Gulf littoral to exploit their hydrocarbon and other natural resources and export them;
 - ✓ freedom of commercial shipping in international waters of the Persian Gulf;
 - ✓ freedom of access to, and outlet from, Gulf waters through the Strait of Hormuz;
 - ✓ prevention of conflict that may impinge on the freedom of trade and shipping
 - ✓ prevention of emergence of conditions that may impinge on any of these considerations.

8. U.S. religious freedom report takes note of CAA, NRC, J&K status

Why in News?

- The U.S. State Department has recently released its annual International Religious Freedom (IRF) Report, a survey of the state of religious freedom across the world, submitted to the U.S. Congress.



Highlights:

- Unveiling the report at the State Department recently US Secretary of state-listed countries for positive developments in religious freedom and negative examples
- India was not cited in either of the two lists.
- Nicaragua, Nigeria, and China were cited as negative examples
- Regarding China, it was said that Uighurs, Tibetans, Falun Gong followers, and Christians were being repressed by the state.

India Specific Findings of the Report:

- Even though the report has not placed India in either of positive or negative list it took note of following allegations and specific concerns
 - ✓ The Citizenship Amendment Act
 - ✓ The proposed National Register for Citizens
 - ✓ Multiple indices of mob lynchings and anti-conversion laws
 - ✓ The situation in Jammu and Kashmir
- The report also takes note of the Babri Masjid decision by the Supreme Court and the challenges to the 2018 reversal of a ban on some women entering the Sabarimala temple.

Background:

- The US Commission on International Religious Freedom (USCIRF) report, 2020 had earlier recommended to US Secretary of State that the State Department downgrade India's religious freedom to the lowest grade 'Country of Particular Concern (CPC)'.
- The report had placed India alongside countries, including China, North Korea, Saudi Arabia, and Pakistan under the Tier 1 category of particular concern.
- This is the first time since 2004 that India has been placed in 'countries of particular concern' category. India was categorized as a "Tier 2 country" in last year's listing.
- USCIRF has alleged that in 2019, religious freedom conditions in India "experienced a drastic turn downward", with religious minorities under increasing assault.

Countries of Particular Concern:

- It is a designation by the United States Secretary of State (under authority delegated by the President) of a nation guilty of particularly severe violations of religious freedom under the International Religious Freedom Act (IRFA) of 1998 and its amendment of 1999.
 - ✓ The term "particularly severe violations of religious freedom" means systematic, ongoing, egregious violations of religious freedom, including violations such as:
 - ✓ Torture or cruel, inhuman, or degrading treatment or punishment;
 - ✓ Prolonged detention without charges;

- ✓ Causing the disappearance of persons by the abduction or clandestine detention of those persons; or
- ✓ Other flagrant denials of the right to life, liberty, or the security of persons.
- Nations so designated are subject to further actions, including economic sanctions, by the United States.
- Recommendations for inclusion are given by the United States Commission on International Religious Freedom (along with the U.S. Department of State's Office of International Religious Freedom) to the president, the secretary of state, and the US Congress.
- Its recommendations are not always followed by the Secretary of State.
- As per law, the CPC and the Special Watch List (one level less severe than CPC) designations have to be made by the administration no later than 90 days after the publication of the IRF Report.

U.S. Commission on International Religious Freedom (USCIRF):

- USCIRF is an independent, U.S. federal government commission
- It is created by the 1998 International Religious Freedom Act (IRFA) that monitors the universal right to freedom of religion or belief abroad.

Conclusion:

- **Threat to India's Impression as Multi-religious Democracy:**
 - ✓ Overall, such reports contribute to the construction of an image of a country, and the Indian government is cognisant of this pattern.
 - ✓ India advertises itself as a multi-religious democracy and as an adherent to global norms of rule of law.
 - ✓ The catalog of religious violence, incitement, and wrecking of the rule of law in several parts of the country remains an unsettling fact for India.
- **Essential functions of a democracy:**
 - ✓ Reputation is important for a country's economic development and global standing but beyond that instrumental perspective, rule of law and communal harmony are essential for any functioning democracy.

9. Communication stops between North and South Korea

Why in News?

- North Korea has announced that it will cut off all ties, including communication with South Korea amid souring relationship between the two countries.
- Some other experts believe this break in communication may be because of anti-DPRK propaganda being launched into North Korea from activists in South Korea.

Highlights:

- Despite conflict between the two countries, at least 49 hotlines have been established between Seoul and Pyongyang to facilitate diplomatic talks, reduce tensions and military conflict, to coordinate air and sea traffic as well as to engage in cross-border economic projects etc.
- When relations deteriorate between the two countries, these lines of communication are stopped between the two countries, till the situation improves.
- The lines were last cut in 2016 after diplomatic relations between Seoul and Pyongyang deteriorated, coinciding with Donald Trump becoming the US president.
- Most recently, the focus of Pyongyang's ire appears to be projects of activists and North Korean defectors in South Korea who send anti-DPRK leaflets across the border to North Korea.
- Along with these propaganda leaflets, other items such as rice, medicines and Bibles have also been sent across by activists using balloons.
- Long-time observers of the Korean Peninsula believe this recent development may just be about economic pressures that Pyongyang is facing, particularly at a time when the coronavirus outbreak that impacted the world economy.
- Some researchers believe severing communication lines may have been initiated to add pressure on Seoul to revive inter-Korean economic projects that would help Pyongyang, while at the same time, force Seoul to stop activists and defectors from launching propaganda into the country.
- These inter-Korean tensions come at a time when North Korea and the US have reached an impasse on negotiations on nuclear capabilities of North Korea, discussions that had been aided by South Korea.

10. US sanctions against International Criminal Court

Why in News?

- President Donald Trump has authorised sanctions against ICC officials involved in investigations into possible war crimes by US troops or those of its allies.

Highlights:

- The Trump administration, which has long considered the international law forum a threat to US sovereignty, announced the strict punitive measures that Washington generally reserves for use against terror groups and those accused of abusing human rights.
- Secretary of State Mike Pompeo, the country's top diplomat, called the 123 nations-strong tribunal a "kangaroo court". US officials have also blamed Russia for manipulating the ICC in its favour. In 2019, the ICC's chief prosecutor Fatou Bensouda asked for a formal probe into alleged atrocities committed during the Afghanistan War between 2003 and 2014—leading to possible indictments of US military and CIA officials.
- The Trump administration reacted by revoking the Gambian lawyer's US visa. Washington has broadened the visa restrictions on ICC officials directly involved in probes against its nationals or those of its allies. The restrictions also extend to the officials' family members.

The International Criminal Court (ICC):

- The ICC, a permanent judicial body based at The Hague in the Netherlands, was created by the 1998 Rome Statute of the International Criminal Court (its founding and governing document), and began functioning on 1 July 2002 when the Statute came into force.
- The forum was established as a court of last resort to prosecute offences that would otherwise go unpunished, and has jurisdiction over four main crimes: genocide, crimes against humanity, war crimes, and the crime of aggression. 123 nations are States Parties to the Rome Statute and recognise the ICC's authority; the notable exceptions being the US, China, Russia, and India.
- Unlike the International Court of Justice (ICJ), the ICC is not part of the United Nations system, with the UN-ICC relationship being governed by a separate agreement. The ICJ, which is among the UN's 6 principal organs, mainly hears disputes between nations.
- The ICC, on the other hand, prosecutes individuals—its authority extending to offences committed in a member state or by a national of such a state.
- The ICC has been criticised for not pursuing investigations in Western countries (all 4 of its guilty verdicts pronounced so far are in trials from Africa), as well as for working inefficiently.

11. Strategic importance of Ladakh to India and China

Why in News?

- Ladakh and its surrounding area of Aksai Chin has been in news due to the contention between India and China to extend their sovereignty.
- In July 1958, an official monthly magazine in China named China pictorial published a map of the country that would become a bone of contention between India and its East Asian neighbour.

Highlights:

- The importance of Ladakh to both India and China is rooted in complicated historical processes that led to the territory becoming part of the state of Jammu and Kashmir, and China's interest in it post the occupation of Tibet in 1950.
- Up until the Dogra invasion of 1834, Ladakh was an independent Himalayan state, much the same way as Bhutan and Sikkim.
- Ladakh was part of the Tibetan empire which broke up after the assassination of King Langdarma in 742 CE. Thereafter it became an independent kingdom, though its borders fluctuated at different periods of its history and, at times included much of what is now western Tibet.
- Economically, the importance of the region stemmed from the fact that it was an entrepôt between central Asia and Kashmir. At the same time, there was a flourishing trade route across the Karakorum pass to Yarkand and Kashgar to Chinese Turkestan.
- The British legacy of the map of the territory though continued to remain the ground upon which India laid its claim on the area. The claims of both governments rested in part on the legacy of imperialism; British imperialism (for India), and Chinese imperialism (over Tibet) for China. The annexation of Tibet by the People's Republic of China in 1950 sparked newfound interest in Ladakh, and particularly so after the 1959 Tibetan uprising that erupted in Lhasa when the Dalai Lama fled into exile and was granted political asylum in India. There are two main reasons for rising conflict. Firstly, up to 2013 India's infrastructural development in that area was minimal. From 2013, India started pushing for infrastructure projects there and by 2015, it became a major defence priority.
- Second is the August 5, 2019 decision (to remove the special status of Jammu and Kashmir and downgrade the state into two Union Territories). From the Chinese point of view, they would have assumed that if India makes Ladakh a Union Territory, they would be reasserting its control over the entire state.

12. US Accused Air India of Unfair Practices

Why in News?

- The United States Department of Transportation (DOT) has restricted repatriation flights being operated by Air India, accusing India of being “unfair”, and engaging in “discriminatory practices”.

Highlights:

- The order issued by DOT that effective 30 days from the service date of this Order, Air India shall not perform any Third- and/or Fourth-Freedom charter flights unless the Department has granted it specific authority in the form of a statement of authorization.

Allegations made by US:

- Indian government has prevented US carriers from conducting India-US passenger charter operations involving direct sales to individual passengers or through other distribution systems.
- On the other hand, the United States has not placed any limitations on US-India charter operations
- Air India’s repatriation flights have gone beyond the purpose “at least on the India to the US segments”, and have involved sales to any member of the general public able to enter the US.

What is the action being taken by the US?

- US DOT has determined that this situation calls for close scrutiny, on a case-by-case basis, of Air India passenger charter operations.
- US has ordered that prior approval be sought for all Air India repatriation flights, which will enable the US government to exercise that scrutiny.

India’s Response:

- India has said that in addition to facilitating the Vande Bharat Mission, DGCA granted permission to around 870 chartered flights, transporting around 2 lakh passengers, both inbound & outbound.

The freedoms of air in Civil Aviation:

- They pertain to a set of rights accorded to a country’s airlines to enter or land in another country’s airspace or airports.
 - ✓ According to the International Civil Aviation Organization (ICAO)
 - ✓ There are nine freedoms of the air.

- ✓ These rights generally operate on a bilaterally reciprocal basis.
- ✓ But, in certain cases, some restrictions are imposed on capacity allowed from one country to another.
- **Third and Fourth freedoms:**
 - ✓ The US government has called for restrictions on the third and fourth freedoms for India. These freedoms essentially allow basic international service between the two countries. The third freedom: It accords the right to an airline to carry passengers or cargo from its home state to another
 - ✓ The fourth freedom: It allows bringing passengers or cargo from another country to its home state.

13. UN Arms Trade Treaty

Why in News?

- China has recently announced to join the UN arms trade treaty as its efforts to enhance peace and stability in the world.

UN Arms Trade Treaty:

- The Arms Trade Treaty (ATT) is a multilateral treaty that regulates the international trade in conventional weapons.
- The UN General Assembly adopted ATT in 2013 and it entered into force on 4th December 2014.
- The ATT is an attempt to regulate the international trade of conventional weapons for the purpose of contributing to international and regional peace; reducing human suffering; and promoting co-operation, transparency, and responsible action by and among states.

Features of Arms Trade Treaty (ATT):

- Aims to prevent diversion of arms for crimes and genocides.
- Designed to control the flow of weapons into conflict zones.
- By curbing illicit trade of conventional firearms, tanks, artillery, attack helicopters, warships, missiles and ammunitions.
- Puts legally binding obligations on both importing and exporting country.
- Importers have to provide detail about usage of arms purchased, and assure the exporting country about compliance with this treaty.
- Exporting nation prevent arms transfer, if they suspect possible usage in genocides or crimes against humanity.

- Mechanism for information sharing among member states to prevent diversion of the arms.
- The ATT does not place restrictions on the types or quantities of arms that may be bought, sold, or possessed by states.

Key Facts:

- India has not signed the treaty citing that it has strong and effective national export controls on military hardware to ensure they don't fall into the wrong hands.
- As per latest reports of SIPRI (January 2020), China is the second largest arms producer in the world, behind the US.
- US had signed the treaty but not ratified it yet. Trump has called to exit from the same.

14. ASEAN states warn of S. China Sea tensions

Why in News?

- Vietnam and the Philippines warned of growing insecurity in Southeast Asia at the ASEAN summit, particularly due to China's aggression in the South China Sea over the disputed territories.



Highlights:

- They indirectly criticized China for its assertiveness.
- Since 2013, the People's Republic of China has resorted to island-building in the Spratly Islands and the Paracel Islands region.
- In April 2020, Beijing unilaterally declared the creation of new administrative districts on the disputed territories.
- A Chinese maritime vessel also sunk a Vietnamese boat in April 2020.
- China has been pushing its presence in the Exclusive Economic Zones of other countries while claimants are preoccupied with tackling the COVID-19 pandemic.

South China Sea:

- It is an arm of the western Pacific Ocean in Southeast Asia, south of China, east and south of Vietnam, west of the Philippines and north of the island of Borneo.
- Bounded by the east coast of the Malay Peninsula and the southern part of the Gulf of Thailand.
- It is connected by the Taiwan Strait with the East China Sea and by the Luzon Strait with the Philippine Sea (both marginal seas of the Pacific Ocean).
- The South China Sea is used by major international shipping lanes.
- Hundreds of smaller harbors and three major ports, Hong Kong, Singapore, and Kaohsiung in southern Taiwan serve as trans-shipment centers.

South China Sea Dispute:

- It is a dispute over territory and sovereignty over ocean areas, and the Paracels and the Spratlys - two island chains claimed in whole or in part by a number of countries.
- Alongside the fully-fledged islands, there are dozens of rocky outcrops, atolls, sandbanks and reefs, such as the Scarborough Shoal.
- Although largely uninhabited, the Paracels and the Spratlys may have reserves of natural resources around them.
- The sea is also a major shipping route and home to fishing grounds that supply the livelihoods of people across the region.

Who Claims What?

- **China** claims by far the largest portion of territory - an area defined by the "nine-dash line" which stretches hundreds of miles south and east from its most southerly province of Hainan. The claim is based on 14th-century writings from the Song Dynasty.

- **Vietnam** on the other hand, says that historical texts from at least the 15th century show that the islands were a part of its territory.
- **Malaysia** and Brunei also lay claim to territory in the South China Sea that they say falls within their economic exclusion zones, as defined by UNCLOS - the United Nations Convention on the Law of the Sea.
- **The Philippines** had sought international arbitration under the auspices of the UN Convention on the Laws of the Sea, to challenge its claims.
- In July 2016, the tribunal backed the Philippines' case, saying China had violated the Philippines' sovereign rights.
- China had boycotted the proceedings, and called the ruling "ill-founded". It says it will not be bound by it.
- China prefers bilateral negotiations with the other parties. But many of its neighbors argue that China's relative size and clout give it an unfair advantage.

ASEAN (Association of SouthEast Asian Nations):

- It is a regional intergovernmental organization comprising ten countries in Southeast Asia namely - Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.
- It promotes intergovernmental cooperation and facilitates economic, political, security, military, educational, and sociocultural integration among its members and other countries in Asia. It was established in 1967 by the Bangkok Declaration.
- Its secretariat is located in Jakarta, Indonesia.

15. International Day Against Drug Abuse and Illicit Trafficking

Why in News?

- The International Day Against Drug Abuse and Illicit Trafficking or the World Drug Day is celebrated annually on June 26.

Highlights:

- The United Nations General Assembly designated June 26 as International Day against Drug Abuse and Illicit Trafficking in December 1987.
- The theme of World Drug Day 2020 is Better Knowledge for Better Care.
- It emphasises the need to improve the understanding of the world drug problem and how better knowledge will foster greater international cooperation for countering its impact on health, governance and security.

-
- The day is dedicated to eradicating drug abuse and neutralise the systemic challenges which sustain the illegal drug issues.

Drug Abuse:

- Drug abuse does not only include consumption of drugs such as cocaine, hallucinogens, cannabis, opiates among others, but also includes prescription medications such as painkillers and sleeping pills.
- According to the World Drug Report 2017, released by the United Nations Office on Drugs and Crime (UNODC), about a quarter of a billion people used drugs at least once in 2015.



7. INTERNAL SECURITY & DISASTER MANAGEMENT

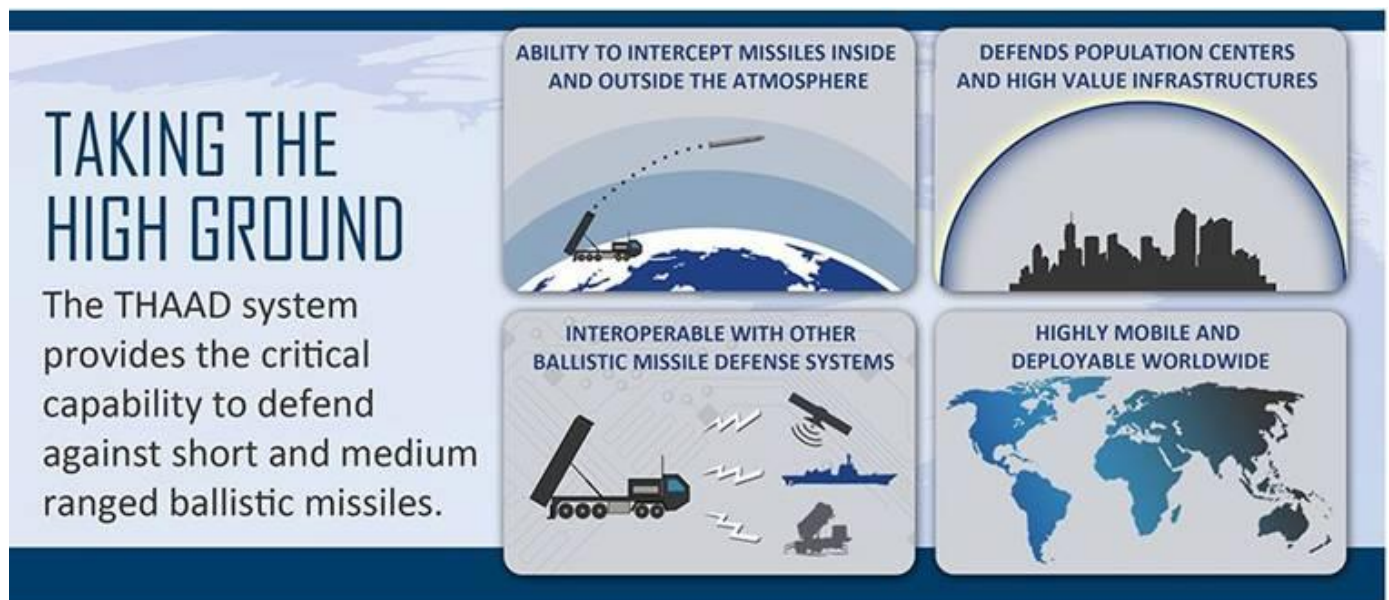
1. THAAD defence systems

Why in News?

- China has issued a statement reiterating its long-standing objections to the presence of the US THAAD missile defence system in South Korea.

Highlights:

- China's opposition came following reports of an overnight operation to bring in new, replacement interceptor missiles to the US base in South Korea.
- China has been objecting to the defence system since it was first deployed in South Korea three year ago, causing a deterioration in ties between the two countries.



THAAD:

- THAAD is an acronym for Terminal High Altitude Area Defense, a transportable, ground-based missile defense system.
- Missile defense systems are intended to safeguard a country against imminent ballistic missile attacks.
- THAAD is coupled with space-based and ground-based surveillance stations, which transfer data about the incoming missile and inform the THAAD interceptor missile of the threat type classification.
- THAAD is alarmed about incoming missiles by space-based satellites with infrared sensors.

- This anti-ballistic missile defense system has been designed and manufactured by the US company Lockheed Martin.
- It has been previously deployed in the UAE, Guam, Israel and Romania.
- It has capability to intercept and destroy short, medium and intermediate range ballistic missiles at the range of 200 Km and altitudes of up to 150 Km.
- The THAAD missile intercepts threats inside or outside the atmosphere during their final or terminal phase.
- THAAD intercepts rockets amid their terminal period of flight like Patriot defense systems.
- THAAD interceptors use hit-to-kill technology where the imminent threat is wrecked by kinetic energy and uses the largest Army Navy/Transportable Radar Surveillance (AN/TPY-2).
- Speed : 10080 km/h-Mach 8.24
- The THAAD launcher is truck mounted which makes it portable, capable of carrying up to eight interceptors

Deployment of THAAD in South Korea:

- In South Korea, the THAAD missile defense system is operated by the US army stationed in the country.
- The US had previously announced that the deployment of this missile defense system was a countermeasure against potential attacks by North Korea, particularly after the country had engaged in testing ballistic missiles.
- In 2017, matters escalated in the Korean Peninsula after North Korea test fired a few missiles in the direction of US bases in Japan.
- Following this incident, the US amended its plans and moved the systems to its army base in Osan, South Korea while the final deployment site was being prepared.

2. Malabar Naval Exercise to include Australia

Why in News?

- India is prepared to expand the Malabar trilateral naval exercise involving India, the U.S. and Japan, to permanently include Australia.

Ex. Malabar:

- Exercise Malabar is a trilateral naval exercise involving the United States, Japan and India as permanent partners.

- Originally begun in 1992 as a bilateral exercise between India and the United States, Japan became a permanent partner in 2015.
- Past non-permanent participants are Australia and Singapore.
- The annual Malabar series began in 1992 and includes diverse activities, ranging from fighter combat operations from aircraft carriers through Maritime Interdiction Operations Exercises.

Significance of Australia's Inclusion:

- Earlier, India had concerns that it would give the appearance of a “quadrilateral military alliance” aimed at China.
- Now both look forward to the cooperation in the ‘Indo-Pacific’ and the strengthening of defence ties. This has led to a convergence of mutual interest in many areas for a better understanding of regional and global issues.
- Both are expected to conclude the long-pending Mutual Logistics Support Agreement (MLSA) as part of measures to elevate the strategic partnership.

3. World Day to Combat Desertification and Drought

Why in News?

- June 17 is observed worldwide as the World Day to Combat Desertification and Drought.

Highlights:

- The day is observed annually by the United Nations observance.
- Its purpose is to raise awareness of the presence of desertification and drought, highlighting methods of preventing desertification and recovering from drought.
- **Theme 2020:** Food. Feed. Fibre

United Nations Convention to Combat Desertification:

- The United Nations Convention to Combat Desertification (UNCCD) is the legally binding international agreement linking environment and development to sustainable land management.
- It derives directly from the 1992 Earth Summit.
- It was established in 1994 and addresses arid, semi-arid and dry sub-humid areas, known as the drylands.
- Secretariat of UNCCD is at Bonn, Germany.
- The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation.

Concerns:

- The United Nations Convention to Combat Desertification has said that land use change, which prepares the ground for zoonoses like COVID-19, should be reversed urgently.
- Over 70 per cent of all natural, ice-free land in the world is affected by human use.
- This could further rise to 90 per cent by 2050, if global land use follows the same path. This land degradation affects some 3.2 billion people worldwide.
- Agricultural land for food, animal feed and fiber are behind the land use change.
- There is an urgency both at the policy and practical levels to slow down and reverse land use.

4. INS Airavat

Why in News?

- Indian Navy's INS Airavat brings back 198 Indian citizens from Maldives under operation Samudra Setu.

INS Airavat:

- INS Airavat, commissioned in the Indian Navy in 2010, is one of the biggest and heaviest naval ships of the Indian Navy.
- It is capable of carrying 10 battle tanks, more than 500 troops, and 11 combat trucks.
- INS Airavat provides a comfortable platform to Sea King and Dhruv helicopters.
- It is also equipped with two indigenous rocket launchers to provide support in amphibious operations.
- The Indian Navy in January 2020 conducted "Operation Vanilla", with INS Airavat delivering relief material such as food, clothing, medicines, and water to Madagascar devastated by a cyclone and the subsequent rainfall and landslide.
- Operation Samudra Setu is part of the GOI's initiative to repatriate Indians stranded in foreign countries due to the coronavirus pandemic.