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200 HIT-LIST TOPICS FOR PRELIMS 2021

BY GUNA MATHIVANAN

EVERYDAY.
20 MINUTES.
AT **2 PM.**
ONLY ON



Schemes

1) SPARC

About SPARC

- The Scheme for Promotion of Academic and Research Collaboration (SPARC) is a **Ministry of Education's** initiative 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.
- It was launched in 2018.
- Indian Institute of Technology, Kharagpur** is the National Coordinating Institute to implement the SPARC programme.
- A set of **6 Thrust Areas** (Fundamental Research, Emergent Areas of Impact, Convergence, Action-Oriented Research, Innovation-Driven and Humanities and Social Science) and sub-theme areas in each thrust area has been identified for collaboration under SPARC based on emergent relevance and importance for the nation.

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 under the
- The project, taken up under the SPARC, aims at developing alternative technologies to produce green hydrogen in anticipation of transition to a hydrogen-based economy.
- The aim of this international collaboration is to develop novel low cost electrocatalysts for hydrogen evolution reactions.

Water Electrolysis

- 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' (WE), is clean, facile, and highly efficient technology for large-scale production of high-purity Hydrogen.

2) Khelo India State Centres of Excellence

Khelo India Scheme

- The Khelo India programme has been introduced to **revive the sports culture in India at the grass-root level** by building a strong framework for all sports played in our country.
- It is implemented by the **Ministry of Youth Affairs and Sports**.
- It was launched in the year 2018.
- Under the scheme, talented players identified in priority sports disciplines at various levels (by the High-Powered Committee) will be provided **annual financial assistance of 5 lakh per annum for 8 years**.

Why in News?

- The Ministry of Youth Affairs and Sports is set to establish **Khelo India State Centres of Excellence (KISCE)** under the Khelo India Scheme to **enhance India's Olympic performance**.
- One KISCE will be identified in each state and union territory, with an effort to create a robust sporting ecosystem in the entire country.
- The State and Union Territory will run the centre and build capacity to turn it into the world-class sporting facility. They will be responsible for all aspects of management of the centre including, boarding, lodging and maintenance, while funds for expert coaches, supporting staff, equipment, infrastructure will be extended through the Khelo India Scheme.

3) PM SVANidhi

About the scheme

- It was launched by the **Ministry of Housing and Urban Affairs** for providing **affordable Working Capital loans to street vendors** to resume their livelihoods that have been adversely affected due to Covid-19 lockdown.
- Under the Scheme, vendors can avail a working capital loan of up to **Rs. 10,000**, which is repayable in monthly instalments in the tenure of **one year**. The loans would be **without collateral**.

- If the vendor repays the instalments in time or earlier, they will develop his credible credit score that makes him eligible for a higher amount of term loan to 20 thousand rupees and so on.
- On timely/ early repayment of the loan, an **interest subsidy @ 7% per annum** will be credited to the bank accounts of beneficiaries through Direct Benefit Transfer on quarterly basis.
- There will be no penalty on early repayment of loan. The scheme promotes digital transactions through cash back incentives up to an amount of Rs. 100 per month.
- The scheme targets to benefit over **50 lakh street vendors**. The duration of the scheme is till March 2022.
- **SIDBI** will implement the PM SVANidhi Scheme.
- The lending institutions under the Scheme include Scheduled Commercial Banks, Regional Rural Banks, Small Finance Banks, Cooperative Banks, NBFCs, Microfinance institutions and Self Help Group banks.

Why in News?

- The government has launched the Pradhan Mantri Street Vendor's Atmanirbhar Nidhi (PM SVANidhi) Scheme.

SIDBI

- Small Industries Development Bank of India (SIDBI) set up in 1990 under an Act of Indian Parliament.
- SIDBI acts as the **principal financial institution** for promotion, financing and development of the **Micro, Small and Medium Enterprise (MSME) sector** as well as for coordination of functions of institutions engaged in similar activities.
- The functions of SIDBI include financing small scale industrial units, providing seed capital to startups, providing technical assistance, promoting cleaner production and energy efficiency.
- The **Shares of SIDBI** are held by the Government of India and twenty-nine other institutions / public sector banks /

insurance companies owned or controlled by the Central Government.

- SIDBI also maintains the **UdyamiMitra portal** with the objective to help the MSMEs with easy and secure access to financial and non-financial services. This is a one of a kind portal where MSME loan seekers can connect virtually to Lenders and Handholding agencies.

4) Garib Kalyan Rojgar Abhiyan

About the scheme

- It aims to offer **immediate employment to migrant workers who have returned to their villages because of COVID-19 lockdown**, and while doing so it is expected to create durable infrastructure in rural areas.
- A total of **116 Districts** with more than 25 thousand returnee migrant workers across **six States**, namely **Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan, Jharkhand and Odisha** have been chosen for the campaign.
- These districts are estimated to cover about two-third of such migrant workers.
- Public Works worth Rs 50,000 crore would be carried out in these districts to provide immediate relief to these workers.
- This is an umbrella scheme that has brought under it 25 different government schemes of 12 ministries/departments.
- Workers will be employed in rural housing, rural connectivity including the Pradhan Mantri Gram Sadak Yojana, national highways, railway works, community sanitation complex, gram panchayats, anganwadis, water conservation, digging of wells, plantation and horticulture.
- This scheme will be made available for **125 days** and extension of the scheme will be decided based on the need.

Why in News?

- Prime Minister Narendra Modi launched Garib Kalyan Rojgar Abhiyan, a massive rural public works scheme, in six states.

Initiatives

1) Skills Build Reignite

What is it?

- The Skills Build Reignite platform aims to provide job seekers and entrepreneurs with access to free online coursework and mentoring support, designed to help them reinvent their careers and businesses.
- Relevant content on topics including Artificial intelligence, Cloud, Data analytics and security to reskill and upskill themselves, are **provided free of cost**.
- It will address the widening skill gap in the country and create a **culture of upskilling**.

Why in News?

- The **Ministry of Skill Development and Entrepreneurship (MSDE)** in partnership with IBM has unveiled Free Digital Learning Platform 'Skills Build Reignite'.

2) YUKTI 2.0

About YUKTI

- The portal has been launched to **monitor and record initiatives**, especially related to Covid-19, taken by various departments of the **Ministry of Education** (formerly the Ministry of Human Resource Development) and academic institutions.
- YUKTI will cover various initiatives and efforts of institutions in academics and research, social initiatives by institutions and measures taken for the betterment of students.
- It will also allow various institutions to **share their strategies** for various challenges which are there because of the unprecedented situation of Covid-19 and other future initiatives.
- The portal will also establish a **two-way communication channel** between the ministry and the institutions so that the necessary support system can be provided to the institutions.

Why in News?

- The Ministry of Education has launched the initiative '**YUKTI 2.0**' to help systematically assimilate technologies having commercial potential and

information related to incubated startups in our higher education institutions.

What is YUKTI 2.0?

- YUKTI 2.0 is an extension of 'YUKTI Portal'.
- YUKTI 2.0 will help in fostering the culture of innovation and entrepreneurship in our academic institutions.**
- It is focused on creating a national database of technologies and innovations along with their commercialization potential.

3) Indian National Space Promotion and Authorization Centre

About IN-SPACe

- IN-SPACe is the new entity of the **Department of Space**.
- It will have its own chairperson and board, and **regulate and promote building of routine satellites, rockets and commercial launch services through Indian industry and startups**.
- It will function **autonomously and parallel to ISRO**.
- ISRO will remain the basic body that decides what missions are to be undertaken but this new body will help fill the gaps.
- IN-SPACe will act as an **interface between ISRO and private parties**, including educational and research institutions, and assess how best to utilise India's space resources and increase space-based activities.

Significance

- The IN-SPACe will provide a level playing field for private companies to use Indian space infrastructure, both ground- and space-based, scientific and technical resources, and even data.
- This is a part of reforms aimed at giving a boost to private sector participation in the entire range of space activities.
- The government also announced that **NSIL [NewSpace India Ltd]** will be strengthened and empowered with a

- larger role in the new open and inclusive space sector.
- **NSIL will work with IN-SPACe** and enable industry consortia to take on some of the activities of ISRO. These include launch vehicles and satellite production, launch services and space based services.

What's in the news?

- The Union Cabinet has approved the creation of the Indian National Space Promotion and Authorization Centre (IN-SPACe) to provide private players to use Indian space infrastructure.

About NSIL

- New Space India Limited, incorporated in 2019 (under the Companies Act, 2013) is a **wholly owned Government of India company**, under the administrative control of **Department of Space (DOS)**.
- NSIL is the **commercial arm** of ISRO with the primary responsibility of **enabling Indian industries to take up high technology space related activities**.
- It is also responsible for promotion and commercial exploitation of the products and services emanating from the Indian space programme. NSIL will be the **nodal agency for carrying out PSLV production** through Indian Industry under consortium route.
- The major business areas of NSIL include:
 1. Production of Polar Satellite Launch Vehicle (PSLV) and Small Satellite Launch Vehicle (SSLV) through industry;
 2. Production and marketing of space-based services, including launch services and space-based applications like transponder leasing, remote sensing and mission support services;
 3. Building of Satellites (both Communication and Earth Observation) as per user requirements.
 4. Transfer of technology developed by ISRO centres/ units and constituent institutions of Dept. of Space;
 5. Marketing spin off technologies and products/ services emanating out of ISRO activities;
 6. Consultancy services.

4) Indian Gas Exchange (IGX)

What's in the news?

- India has launched its first gas exchange — the Indian Gas Exchange (IGX), first **nationwide online delivery-based gas trading platform for natural gas**.
- The exchange is expected to facilitate transparent price discovery in natural gas, and facilitate the growth of the share of natural gas in India's energy basket.
- IGX is incorporated as a **wholly-owned subsidiary of the Indian Energy Exchange Limited (IEX)**. IEX is India's energy market platform.

How will this exchange work?

- The IGX is a digital trading platform that will allow buyers and sellers of natural gas to trade both in the **spot market** and in the **forward market** for **imported natural gas** across three hubs —Dahej and Hazira in Gujarat, and Kakinada in Andhra Pradesh.
- Imported Liquified Natural Gas (LNG) will be regassified and sold to buyers through the exchange, removing the requirement for buyers and sellers to find each other.
- The exchange also allows much shorter contracts – for delivery on the next day, and up to a month – while ordinarily contracts for natural gas supply are as long as six months to a year. This will allow buyers and sellers greater flexibility.

Will domestically produced natural gas also be bought and sold on the exchange?

- **No.** The price of domestically produced natural gas is decided by the government. It will not be sold on the gas exchange.

Status of domestic production of gas

- Domestic production of gas has been **falling** over the past two fiscals as current sources of natural gas have become less productive.
- Domestically produced natural gas currently **accounts for less than half the country's natural gas consumption**; imported LNG accounts for the other half.
- LNG imports are set to become a larger proportion of domestic gas consumption as India moves to increase the proportion of natural gas in the energy basket from 6.2% in 2018 to **15% by 2030**.

Related information

- The spot market is where financial instruments, such as commodities,

- currencies and securities, are traded for immediate delivery.
- A forward market, on the other hand, is an over-the-counter marketplace that sets the price of a financial instrument or asset for future delivery.

5) National Disaster Response Fund

About NDRF

- Under the Disaster Management Act 2005, a financial mechanism has been set up by way of National Disaster Response Fund (NDRF) at national level and State Disaster Response Fund (SDRF) at state level to meet the rescue and relief expenditure during any notified disaster.
- The primary purpose of NDRF is to **supplement the SDRF**, in case there is a calamity of “severe nature” which requires assistance over and above the funds available under SDRF.
- NDRF is classified in the **Public Accounts of the Government of India** under “Reserve Funds not bearing interest”.
- The NDRF is funded through the **National Calamity Contingency Duty (NCCD)** imposed on specified goods and additional budgetary support is provided as and when necessary.
- The National Executive Committee (NEC) of the National Disaster Management Authority takes decisions on the expenses from the National Disaster Response Fund.

Why in News?

- For the first time, the Finance Ministry has allowed for **individual and institutional contributions to the National Disaster Response Fund** by invoking Section 4(1)(b) of the Disaster Management Act.

6) SWADES initiative

About the initiative

- The SWADES- Skilled Workers Arrival Database for Employment Support initiative aims to conduct a **skill mapping exercise of the returning citizens** under the **Vande Bharat Mission**.
- This is a joint initiative of the **Ministry of Skill Development and**

Entrepreneurship, Civil Aviation Ministry and External Affairs Ministry.

- The objective is to create a database of qualified citizens based on their skill sets and experience to tap into and fulfil demand of Indian and foreign companies.
- The collected information will be shared with the companies for suitable placement opportunities in the country. The returning citizens are required to fill up an online **SWADES Skills Card**. The data collected through SWADES Skill Card will help the citizens with job prospects and bridge the demand-supply gap.

What's in the news?

- The Central Government has launched a new initiative SWADES.

Vande Bharat Mission

- It is India's major mission to **evacuate stranded Indians from other countries** due to the coronavirus pandemic and subsequent lockdown.

7) Payment Infrastructure Development Fund

What's in the news?

- **The Reserve Bank of India (RBI)** has created a Payment Infrastructure Development Fund (PIDF) with a corpus of Rs 500 crore with an aim to **give a push to digital payments**.
- The RBI has made an initial contribution of Rs 250 crore covering half the fund. The remaining will come from the card-issuing banks and card networks operating in the country.

Need for the fund

- This fund has been created to encourage acquirers to **deploy Point of Sale (PoS) infrastructure**, both physical and digital, in **tier-3 to tier-6 centres and north eastern states**.
- Given the high cost of merchant acquisition, most of the POS terminals in the country are concentrated in tier 1 and 2 cities and towns and other regions have been left out.
- This move will make the economics more favourable and will significantly increase the merchant base accepting digital payments.

News in detail

- The dedicated fund for deepening digital payments infrastructure will receive recurring contributions to cover operational expenses from card issuing banks and card networks and the central bank will also contribute to yearly shortfalls, if necessary.
- The fund will be **governed through an advisory council** but it will be **managed and administered by the RBI**.

Committee on deepening digital payments

- The setting up of PIDF is in line with the recommendations of the report of the committee on deepening digital payments, chaired by **Nandan Nilekani**.
- The report had also made the case for an **Acceptance development fund** which will be used to develop card acceptance infrastructure across small towns and cities.

8) India Rankings 2020: NIRF

About the rankings

- The National Institutional Ranking Framework (NIRF) was launched by the **Ministry of Education (MoE)** in 2015. This framework outlines a methodology to rank institutions across the country.
- There are separate rankings for different types of institutions depending on their areas of operation like universities and colleges, engineering institutions, management institutions, pharmacy institutions and architecture institutions.
- The ranking framework evaluates institutions on **five broad generic groups of parameters**, i.e. Teaching, Learning and Resources (TLR), Research and Professional Practice (RP), Graduation Outcomes (GO), Outreach and Inclusivity (OI) and Perception (PR).
- NIRF is one of the criteria for private institutions assessment for the **Institutions of Eminence (IoE) Scheme**.

Why in News?

- The Ministry of Education has released its NIRF India Rankings 2020 rankings.
- **Dental institutions** have been included for the first time in the NIRF Rankings bringing the total tally to 10 categories / subject domains.

IoE Scheme

- The Institutions of Eminence (IoE) Scheme was announced in 2016 to improve the ranking of Indian higher educational institutions at the global level.
- Under this scheme, **MoE** will select 20 IoEs — **10 public and 10 private** and establish them as world class institutes in the country.
- These twenty institutions will be provided with greater autonomy, grants and special preferences.

Criteria for Selection of Institutions:

- Institutions which are under **top fifty in National Institutional Ranking Framework** are eligible for applying for IoE status, Or
- **Top 500 in internationally recognised rankings** like the Times Higher Education World University Rankings.

Features of IOE status:

- The 10 public institutions which will be selected will get **Rs 1,000 crore** each from the HRD Ministry to achieve world-class status. The government will offer **no financial assistance** to the private institutions.
- For both private and public institutions, administrative autonomy will be given. Curriculum, course structure, fee structure, salary structure can be designed by themselves.
- Up to 25% of faculties can be hired from abroad, about 30% of students from abroad can be given admissions, and almost 20% of the courses can be given online.
- There will be **no restrictions from UGC** in terms and services conditions as the scheme aims to promote administrative autonomy for the better innovation ecosystem.
- Apart from public and private, IoE status can be also given to **greenfield institutions** (institutions which are yet to be established) for encouraging new players.

9) TULIP

About TULIP

- The objective of The Urban Learning Internship Programme (TULIP) is to **provide internship opportunities to thousands of fresh graduates and**

engineers of the county under the 'Smart City' projects.

- TULIP interns would get exposure in a large number of areas including but not limited to urban planning, urban design, different branches of engineering, information and technology, mobility, finance, social sector issues and environmental issues.

Objectives

- TULIP would benefit Urban Local Bodies (ULBs) and smart cities immensely. It will lead to infusion of fresh ideas and energy with engagement of youth in co-creation of solutions for solving India's urban challenges.
- It will further Government's endeavors to boost community partnership and government-academia-industry-civil society linkages.

Eligibility Conditions

- Open only to Indian citizens.
- Not more than 18 months should have passed from the date of declaration of final year results to the date from which the internship is sought.

Duration and extension of engagement

- The duration of the internship will be a **minimum of 8 weeks up to 1 year.**

Why in News?

- The Ministry of Education (MoE), Ministry of Housing and Urban Affairs (MoHUA) and All India Council for Technical Education (AICTE) have jointly launched TULIP.

About Smart Cities Mission

- Smart Cities Mission is an urban renewal and retrofitting program launched by the Government of India in 2015 with the mission to develop **100 cities across the country** making them citizen friendly and sustainable.
- The Smart Cities Mission is meant to set examples that can be replicated both within and outside the Smart City, catalysing the creation of similar Smart Cities in various regions and parts of the country.
- The strategic components of area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development) plus a Pan-city initiative in which Smart

Solutions are applied covering larger parts of the city.

Implementation

- The implementation of the Mission at the City level will be done by a **Special Purpose Vehicle (SPV)** created for the purpose.
- The SPV will plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the Smart City development projects.
- Each smart city will have a SPV which will be headed by a full time CEO and have nominees of Central Government, State Government and ULB on its Board.

10) SATYABHAMA portal

What's in the news?

- The **Ministry of Mines** has launched the SATYABHAMA (Science and Technology Yojana for Aatmanirbhar Bharat in Mining Advancement) portal with an aim to **promote research and development in the mining and minerals sector.**
- This portal will allow online submission of project proposals along with monitoring of the same and utilisation of funds.
- The portal has been designed, developed and implemented by the **National Informatics Centre (NIC).**
- The portal is integrated with **NGO Darpan Portal** of NITI Aayog.
- *NGO-DARPARAN is a platform that provides space for interface between Non-Government organizations (NGOs)/ Voluntary Organizations (VOs) in the country and key Government Ministries / Departments / Government Bodies.*
- *At present, the portal is being maintained under the aegis of NITI Aayog.*

About NIC

- The National Informatics Centre was established in 1976, as an attached office under the **Ministry of Electronics and Information Technology.**
- The NIC provides infrastructure to help support the delivery of government IT services and the delivery of some of the initiatives of Digital India.

11) One Sun One World One Grid

About OSOWOG

- The idea of 'One Sun One World One Grid' (OSOWOG) was originally proposed by Prime Minister Narendra Modi at the first assembly of the International Solar Alliance (ISA) in October 2018.
- OSOWOG is India's initiative to build a **global ecosystem of interconnected renewable energy resources**. The blueprint for the OSOWOG will be developed under the **World Bank's technical assistance programme** that is implemented to accelerate the deployment of grid connected rooftop solar installations.
- The underlying logic is that a grid spread across multiple time zones could balance intermittent renewables with other renewables: the setting sun in one part of the grid is made up for by solar, wind or hydropower produced in a distant place.
- OSOWOG is planned to be completed in **three phases**. The first phase will entail interconnectivity within the Asian continent; the second phase will add Africa and the third phase will globalise the whole project.

Why in News?

- The **Ministry of New and Renewable Energy (MNRE)** has invited proposals for developing a long-term vision, implementation plan, road map and institutional framework for implementing OSOWOG.

12) Digital Platforms

Context

- During COVID-19 pandemic, Indian government's use of digital technology and providing information on national portals, mobile apps or through social media platforms is the game changer to reach to the masses.

Aarogya Setu App

- The 'Aarogya Setu' App enables people to **assess themselves the risk of catching the coronavirus infection**. It was developed by the **National Informatics Centre** under the **Ministry of Electronics and Information Technology**.
- It calculates this based on people's interaction with others, using cutting-edge bluetooth technology, algorithms and

artificial intelligence. The personal data collected by the App is encrypted using state-of-the-art technology and stays secure on the phone till it is needed for facilitating medical intervention and is available in 11 languages.

Corona Kavach

- It is a **COVID-19 tracker application**, created by the **Union Ministry of Electronics and Information Technology** in collaboration with the **Ministry of Health and Family Welfare**.
- This application provides users with real-time location of infected users who have activated the 'Kavach' feature.

SAMPRAC

- Defence Research and Development Organisation (DRDO)** has developed an app called 'SAMPRAC' to enable tracking people under quarantine.
- The system enables **geo-fencing, AI-based automated face recognition** (between selfie taken during registration and subsequent selfies sent by the patient), and would have the capability to display the information to the state officials on a map which can be colour-coded to depict hotspots and containment zones.

SAHYOG

- The **Survey of India (SoI)** has developed an e-platform- SAHYOG- that collects **geotagged information on the nation's critical infrastructure** in order to help the government and public health agencies take critical decisions in response to the current COVID-19 pandemic situation.
- The platform has geo-located information of hospitals, testing labs, quarantine camps, containment and buffer zones as well as information on biomedical waste disposal sites.

Some other technology apps developed by the government and playing an important role during COVID- 19 crisis are:

BHIM App

- BHIM (Bharat Interface for Money) is an Indian mobile payment app developed by the **National Payments Corporation of India (NPCI)**, based on the Unified Payments Interface (UPI). Launched in 2016, BHIM helps in facilitating e-payments directly through banks. Transactions on BHIM are nearly

instantaneous and can be done 24/7 including weekends and bank holidays.

RuPay

- It is a card scheme, conceived and launched by the **National Payments Corporation of India** to fulfil the Reserve Bank of India's vision to have a domestic, open and multilateral system of payments. RuPay facilitates electronic payment at all Indian banks and financial institutions.

GeM

- It is an e-commerce portal or the government e-Marketplace (GeM), which has been created to allow government departments to buy their requirements from various vendors without cash or physical payments.

UMANG App

- UMANG (Unified Mobile Application for New-age Governance) is a Government of India's all-in-one single unified secure multi-channel multi-platform multi-lingual multi-service freeware mobile app for accessing over **1,200 central and state government services** in multiple Indian languages.
- It includes services such as AADHAAR, Digi Locker, Bharat Bill Payment System, PAN, EPFO services, PM- KVV services, AICTE, CBSE, tax and fee or utilities bills payments, education, job search, tax, business, health, agriculture, travel, Indian railway tickets bookings, birth certificates, e-District, e-Panchayat, police clearance, passport, other utility services from private companies and much more.

SWAYAM

- It is an **online education programme** initiated by the Government of India to achieve the principles of education policy by providing **access, equity and quality**.
- The Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) seeks to **bridge the digital divide** for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.
- It is done through a platform that facilitates hosting of all the courses, taught in classrooms from **Class 9 till post-graduation** to be accessed by anyone, anywhere at any time free of cost.

13) 'GOAL' Programme For Tribal Youth

About

- The GOAL (Going Online As Leaders) programme of the **Ministry of Tribal Affairs (MoTA)** has been launched in partnership with Facebook.
- The programme is designed to **mentorship tribal youth through digital mode**.

Objectives of the programme

- The programme intends to **upskill and empower 5,000 tribal youths** in the current phase to harness the full potential of digital platforms and tools to learn new ways of doing business, explore and connect with domestic and international markets.

Programme implementation

- In this program, 5000 scheduled tribe youth (to be called 'Mentees') will get an opportunity to get training by experts from different disciplines and fields (to be called 'Mentors'). There will be 1 mentor for 2 mentees.
- The mentees and mentors will be selected based on their inputs in such a way that it represents tribal youth from varied professions and has representation from urban and rural areas across India.
- The program will focus on three core areas - **Digital Literacy, Life Skills and Leadership and Entrepreneurship**, and on sectors such as Agriculture, Art & Culture, Handicrafts & Textiles, Health, Nutrition, among others.

14) MSME Champions

What's in the news?

- The Union Ministry of MSME has launched CHAMPIONS portal www.champions.gov.in, a technology-driven Control Room-Cum-Management Information System.
- The system which utilises modern ICT tools including Artificial Intelligence, Data Analytics and Machine Learning aims at **assisting Indian MSMEs march into the big league as National and Global Champions**.

How does it work?

- The CHAMPIONS stands 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.
- As part of the system a network of control rooms is created in a **Hub & Spoke Model**. The Hub is situated in New Delhi in the Secretary MSME's office. The spokes will be in the States in various offices and institutions of the Ministry.

15) Online Learning during Lockdown

Context

- The use of Education Technology (ET)/Information & Communication Technology (ICT) in imparting education/learning is on the driver's seat during the lockdown period due to COVID-19 globally.

PM e-Vidya Program

- PM eVIDYA envisions to unify all efforts related to digital/ online/on-air education, benefitting nearly 25 crore school going children across the country. The initiative includes:
 1. **DIKSHA**- The nation's digital infrastructure for states/UTs for providing QR coded Energized Textbooks for all grades, Massive Open Online Courses (MOOCs), and quality e-content for school education for students, teachers (One Nation, One Digital Platform)
 2. **SWAYAM PRABHA**- One earmarked TV channel per class from 1 to 12 (One Class, One Channel)
 3. **SWAYAM**- Online courses in MOOCs format for Open school or NIOS
 4. **On Air**- Extensive use of Radio, Community radio and CBSE Podcast - Shiksha Vani
 5. Special e-content for visually and hearing impaired: **Developed on Digitally Accessible Information System (DAISY)** and in sign language on NIOS website/YouTube

16) Measures to Strengthen Agri Infrastructure

Context

- Measures announced by the Finance Minister to Strengthen Agriculture Infrastructure, Logistics, Capacity Building, Governance and Administrative Reforms for Agriculture, Fisheries and Food Processing Sectors:

Rs. 1 lakh crore Agri Infrastructure Fund for farm-gate infrastructure for farmers

- Financing facility of Rs. 1,00,000 crore will be provided for funding Agriculture Infrastructure Projects at farm-gate & aggregation points (Primary Agricultural Cooperative Societies, Farmers Producer Organizations, Agriculture entrepreneurs, Start-ups, etc.).

Rs. 10,000 crore scheme for Formalisation of Micro Food Enterprises (MFE)

- A Scheme promoting the vision of Prime Minister Narendra Modi: '**Vocal for Local with Global Outreach**' will be launched to help 2 lakh MFEs who need technical upgradation to attain FSSAI food standards, build brands and marketing.
- Existing micro food enterprises, Farmer Producer Organisations, Self Help Groups and Cooperatives to be supported. The focus will be on **women and SC/ST owned units and those in Aspirational districts** and a **cluster-based approach** (e.g. Mango in UP, Tomato in Karnataka, Chilli in Andhra Pradesh, Orange in Maharashtra etc.) will be followed.

Rs. 20,000 crore for fisherman through Pradhan Mantri Matsya Sampada Yojana (PMMSY)

- The central government has launched the Pradhan Mantri Matsya Sampada Yojana (PMMSY) – A scheme to bring about **Blue Revolution through sustainable and responsible development of fisheries sector** in India. It aims at integrated, sustainable, inclusive development of **marine and inland fisheries**.
- PMMSY is designed to address critical gaps in fish production and productivity, quality, technology, post-harvest infrastructure and management, modernisation and strengthening of value chain, traceability and establishing a robust fisheries management framework.

Benefits:

- Address the critical gaps in the fisheries sector and realize its potential.
- Augmenting fish production and productivity at a sustained **average annual growth rate of about 9%** to achieve a **target of 22 million metric tons by 2024-25** through sustainable and responsible fishing practices.
- Improving availability of certified quality fish seed and feed, traceability in fish and including effective aquatic health management.
- Creation of critical infrastructure including modernisation and strengthening of value chain.
- Creation of **direct gainful employment opportunities to about 15 lakh** fishers, fish farmers, fish workers, fish vendors and other rural/urban populations in fishing and allied activities and about thrice this number as indirect employment opportunities including enhancement of their incomes.
- Boost to investments in the fisheries sector and increase of competitiveness of fish and fisheries products.
- **Doubling of fishers, fish farmers and fish workers incomes by 2024**
- Social, physical and economic security for fishers and fish workers.
- The **focus will be on islands, Himalayan States, North-east and Aspirational Districts.**

From 'TOP' to TOTAL - Rs. 500 crore

- **Operation Greens** was launched by the Ministry of Food Processing Industries (MOFPI) to stabilize the supply of Tomato, Onion and Potato (TOP) crops and to ensure availability of TOP crops throughout the country round the year **without price volatility**.
- **NAFED** acts as the nodal agency to implement price stabilisation measures under Operation Greens.
- Recently, MOFPI has extended the scheme from tomatoes, onion and potatoes to **all fruit and vegetables**.
- The Scheme would provide 50% subsidy on transportation from surplus to deficit markets, 50% subsidy on storage, including cold storages. This will lead to better price realisation to farmers,

reduced wastages, affordability of products for consumers.

17) AIM: Fostering Innovation

Atal Innovation Mission

- The Atal Innovation Mission (AIM) is a flagship initiative set up by the **NITI Aayog** to **promote innovation and entrepreneurship** across the length and breadth of the country.
- AIM's objective is to develop new programmes and policies for fostering innovation in different sectors of the economy, provide platform and collaboration opportunities for different stakeholders, create awareness and create an umbrella structure to oversee the innovation ecosystem of the country.

Initiatives under Atal Innovation Mission

Atal Tinkering Labs - at School Level

- AIM has launched the establishment of thousands of Atal Tinkering Labs enabling students from **grade 6 to grade 12** to have access to and tinker with innovative tools and technologies like 3D printers, robotics, miniaturised electronics do-it-yourself kits, thus stimulating a problem solving innovative mindset to solve problems in the community they are in.
- Some activities related to ATL Operational Excellence, Proactive Promotion of Innovation & Thought Leadership, Collaborations & Partnerships and New Initiatives by AIM:
 - **ATL Gandhian Challenge** - launched in all schools along with UNICEF.
 - **India Stamp Creativity challenge** - launched with UNICEF and India Post.
 - **PM India Innovative Learning DHRUV Program** - AIM invited as key partner by MHRD.

Atal Incubators at Universities, Institutions, Industry Level

- To promote creation of a supporting ecosystem for start-ups and entrepreneurs, AIM has been establishing world-class incubators called Atal Incubation Centres (AICs) in universities, institutions, corporates, etc. that would foster innovative start-ups and become scalable and sustainable enterprises.

Atal Community Innovation Centres - Serving Unserved and Under-Served Regions of India

- To promote the benefits of technology led innovation to the unserved/ underserved regions of India including Tier 2, Tier 3 cities, aspirational districts, tribal, hilly and coastal areas, AIM is setting up Atal Community Innovation Centres (ACICs) with a unique partnership driven model wherein AIM would **grant up to Rs. 2.5 crore** to an ACIC subject to a partner proving equal or greater matching funding.

Atal New India Challenges - Product and Service Innovations with National Impact

- To create product and service innovations having national socio-economic impact, AIM has launched over 24 Atal New India Challenges in partnership with five

different ministries and departments of the central government.

Applied Research and Innovation for Small Enterprises (ARISE)

- To promote innovation in a phased manner in the MSME/Start-up sector AIM will be launching ARISE along with partner Ministries so that great research ideas are converted to viable innovative prototypes followed by product development and commercial deployment.

Mentorship and Partnerships - with Public, Private sector, NGOs, Academia, Institutions

- To enable all the initiatives to succeed, AIM has launched the "**Mentor India – The Mentors of Change**" programme, in collaboration with the public sector, corporates and institutions, to support all the initiatives of the mission.

Environment

1) Permafrost and risks associated

What is permafrost?

- Permafrost is **ground that remains completely frozen at 0 degrees Celsius or below** for at least **two years**. It is defined solely based on **temperature and duration**.
- The permanently frozen ground, consisting of soil, sand, and rock held together by ice, is believed to have **formed during glacial periods** dating several millennia.
- These grounds are known to be **below 22 per cent of the land surface** on Earth, mostly in polar zones and regions with high mountains.

Active layer:

- While permafrost itself is always frozen, the surface layer that covers it (called the "active layer") need not be frozen.
- In Canada and Russia, for example, colourful tundra vegetation carpet over permafrost for thousands of kilometres.
- Its thickness reduces progressively towards the south, and is affected by a number of other factors, including the Earth's interior heat, snow and vegetation cover, presence of water bodies, and topography.

Climate change and Permafrost:

- The Earth's polar and high altitude regions, its principal permafrost reservoirs, are the most threatened by climate change.
- According to the USA's National Oceanic and Atmospheric Administration, Arctic regions are warming twice as fast compared to the rest of the planet, its current rate of temperature change being the highest in 2,000 years.
- A study has shown that **every 1 degree Celsius rise in temperature can degrade up to 39 lakh square kilometre due to thawing**.
- This degradation is expected to further aggravate as the climate gets warmer, putting at risk 40 per cent of the world's permafrost towards the end of the century- causing disastrous effects.

Impacts of thawing permafrost:

Threat to infrastructure

- As temperatures rise, the binding ice in permafrost melts, making the ground unstable and leading to massive potholes, landslides, and floods.
- The sinking effect causes damage to key infrastructure such as roads, railway lines, buildings, power lines and pipelines that serve more than 3.5 crore people that live in permafrost regions.

Massive trove of pathogens

- Beneath its surface, permafrost contains large quantities of **organic leftover** from thousands of years prior, dead remains of plants, animals, and microorganisms that got frozen before they could rot. These grounds could release ancient bacteria and viruses into the atmosphere as they unfreeze.

Greenhouse gas emissions

- When permafrost thaws, microbes start **decomposing this carbon matter**, releasing greenhouse gases like **methane and carbon dioxide**.
- Researchers have estimated that for **every 1 degree Celsius rise** in average temperature, permafrost grounds could release **greenhouse gases to the tune of 4-6 years' of emissions** from coal, oil, and natural gas, becoming a major factor of climate change in themselves.

Threat to natural ecosystems

- **Thermokarst lakes** are the depressions formed when thawing permafrost collapsed and filled with meltwater are important for wildlife and provide water to local communities.
- But if the underlying permafrost continues to thaw, lakes and wetlands can drain completely, destroying these biologically important resources.

Why in the news?

- The principal reason that led to the recent 20,000-tonne oil leak at an Arctic region power plant in Russia that is now being recognised is the sinking of ground surface due to permafrost thaw.

2) Seabed 2030 Project

About the project

- The global initiative is a collaboration between Japan's non-profit **Nippon Foundation** and the **General Bathymetric Chart of the Oceans (GEBCO)**, an intergovernmental organisation with a mandate to map the entire ocean floor.
- It aims to bring together all available **bathymetric data** (measurement of the shape and depth of the ocean floor) to produce the **definitive map of the world ocean floor by 2030** and make it available to all.
- The project was launched at the United Nations (UN) Ocean Conference in 2017 and is aligned with the **UN's Sustainable Development Goal #14** to conserve and sustainably use the oceans, seas and marine resources.
- For this, the project ropes in governments, private companies, and international organisations to acquire data.

Why in News?

- The Nippon Foundation-GEBCO Seabed 2030 Project has finished mapping nearly one-fifth (19%) of the world's ocean floor.

Why is the study of the ocean floor important?

- The knowledge of bathymetry is instrumental in **understanding several natural phenomena, including ocean circulation, tides, and biological hotspots**.
- It also **provides key inputs** for navigation, forecasting tsunamis, exploration for oil and gas projects, building offshore wind turbines, fishing resources, and for laying cables and pipelines.
- This data becomes highly valuable during **disaster situations**. Previously mapped seafloor helped scientists in Japan to reconstruct the forces behind the destructive 2011 Tohoku earthquake.
- The maps would also ensure a **better understanding of climate change**, since floor features including canyons and underwater volcanoes influence phenomena such as the vertical mixing of ocean water, and ocean currents, thus influencing the weather and climate.

- Climate change has impacted the flow of these currents, and more knowledge about them would help scientists create models forecasting the future behaviour of the climate, including sea-level rise.
- A map of the entire global ocean floor would also help **further achieve the United Nations Sustainable Development Goal** to conserve and sustainably use oceans, seas and marine resources.

3) Assessment of Climate Change over the Indian Region

What's in the news?

- The **Ministry of Earth Sciences (MoES)** has released the "Assessment of Climate Change over the Indian Region" report.
- This report presents a detailed analysis of data from 1901-2018.

Key Takeaways

Alarming rise in temperature

- In a best-case scenario of immediate mitigation of emissions, India's temperature will still rise by **2.7 degrees Celsius** by 2099. The worst-case scenario sees a rise of **4.4 degrees Celsius** by the end of the century.
- The rise in temperatures will be even more pronounced in the **Hindu Kush-Himalayan region** where the average could reach 5.2°C. The region is already highly vulnerable to climate-related variability in temperatures, rainfall and snowfall.
- By 2100, the **frequency of warm days and warm nights** might also increase by 55 per cent and 70 per cent respectively. The incidences of **heat waves** over the country could also increase by three to four times. Their duration of occurrence might also increase which was already witnessed by the country in 2019.
- Between 1900 and 2018, the **average temperatures of India rose by 0.7°C**. This rise in temperatures has been largely attributed to global warming due to Greenhouse gases (GHG) emissions and land use and land cover changes.
- But it has also been **slightly reduced by the rising aerosol emissions** in the

atmosphere that have an overall cooling characteristic.

Global situation

- The latest global climate change assessments by the Intergovernmental Panel on Climate Change (IPCC) indicate a rise in world-wide average surface air temperatures by **5°C by the end of the century** if human activities keep emitting GHGs at the current rate. The global average temperature in the last century **has gone up by 1.1°C**,
- Even if the **Nationally Determined Contributions (NDCs)** declared by countries under the **2015 Paris Agreement** are met, the global average temperature could rise by around 3°C, which could be disastrous.

Variations in monsoon rainfall

- The report predicts that monsoon rainfall could change by an average of 14 per cent by 2100 that could go as high as 22.5 per cent. The report does not mention if this change will be an increase or a decrease but still represents variability. The overall rainfall during the monsoon season has **decreased by six per cent** between 1950 and 2015.
- In the past few decades, there has been an **increased frequency of dry spells** during the monsoon season.
- The **intensity of wet spells** has also increased over the country, with central India receiving 75 per cent more extreme rainfall events between 1950 and 2015. This means that **it either rains too little or too much**.
- One of the primary examples of this were the monsoon seasons of 2018 and 2019 where dry spells were broken by extremely heavy rainfall spells, creating a flood and drought cycle in many regions in India.

4) COVID-19 biomedical waste management guidelines

What's in the news?

- The **Central Pollution Control Board (CPCB)** has released revised guidelines on COVID-19 biomedical waste management.

- This was the third revision made to the guidelines that were first published on April 18.

Key provisions

- The new guidelines must be followed by all stakeholders including **isolation wards, quarantine centres, sample collection centres, laboratories, Urban Local Bodies (ULBs) and common biomedical waste treatment and disposal facilities (CBWTFs)**.
- The guidelines add to existing practices under the **Biomedical Waste Management Rules, 2016**.
- General solid waste like medicine wrappers and cartons, syringes, fruit peels, empty bottles, discarded paper and other items not contaminated by patients' secretions and body fluids must be collected separately, according to **Solid Waste Management Rules, 2016**.
- It is the responsibility of people operating quarantine camps, homes or homecare facilities to hand over general municipal solid waste to waste collectors identified by ULBs.
- Waste generated from kitchens, packing material for groceries, food material, waste papers, waste plastic, floor cleaning dust, etc, handled by patient caretakers or suspected quarantined individuals should be treated as general waste.
- Waste contaminated with blood or body fluids of COVID-19 patients must be collected in yellow bags. The storage of general waste in yellow bags is strictly not allowed.

Related information

Salient features of Biomedical Waste Management Rules, 2016

- Biomedical waste comprises human & animal anatomical waste, treatment apparatus like needles, syringes and other materials used in health care facilities in the process of treatment and research.
- The ambit of the rules has been expanded to include **vaccination camps, blood donation camps, surgical camps or any other healthcare activity**;
- Phase-out the use of **chlorinated plastic bags and gloves** within two years;
- Pre-treatment** of the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or

- sterilisation on-site in the manner as prescribed by WHO or NACO;
- Establish a **Bar-Code System** for bags or containers containing bio-medical waste for disposal;
- Bio-medical waste has been classified in to **4 categories** instead 10 to improve the segregation of waste at source;
- Inclusion of emissions limits for **Dioxin and furans**;
- State Government to provide land for setting up common bio-medical waste treatment and disposal facility;
- No occupier shall establish on-site treatment and disposal facility, if a service of common bio-medical waste treatment facility is available at a distance of seventy-five kilometer.

Salient features of Solid Waste Management Rules, 2016

- It extends the ambit of rules **beyond Municipal areas** to cover urban agglomerations, census towns, notified industrial townships, areas under the control of Indian Railways, airports, airbase, Port and harbour, defence establishments, special economic zones, State and Central government organizations, places of pilgrims, religious & historical importance.
- The **source segregation of waste has been mandated** to channelize the waste to wealth by recovery, reuse and recycle.
- Responsibilities of Generators** have been introduced to segregate waste in to **three streams**, Wet (Biodegradable), Dry (Plastic, Paper, metal, wood, etc.) and domestic hazardous wastes (diapers, napkins, empty containers of cleaning agents, mosquito repellents, etc.) and handover segregated wastes to authorized rag-pickers or waste collectors or local bodies.
- Integration of waste pickers/ rag pickers and waste dealers/ Kabadiwalas in the formal system should be done by State Governments, and Self Help Group, or any other group to be formed.
- Generator will have to pay '**User Fee**' to the waste collector and for '**Spot Fine**' for Littering and Non-segregation.
- Bulk and institutional generators, market associations, event organizers and hotels and restaurants have been made directly

- responsible for segregation and sorting the waste and manage in partnership with local bodies.
- The bio-degradable waste should be processed, treated and disposed of through composting or bio-methanation **within the premises as far as possible**. The residual waste shall be given to the waste collectors or agency as directed by the local authority.
 - New townships and Group Housing Societies have been made responsible to develop in-house waste handling, and processing arrangements for bio-degradable waste.
 - All manufacturers of disposable products** such as tin, glass, plastics packaging etc. or **brand owners** who introduce such products in the market shall provide necessary financial assistance to local authorities for the establishment of a waste management system.
 - All such brand owners** who sell or market their products in such packaging material which are non-biodegradable should put in place a system to collect back the packaging waste generated due to their production.
 - Manufacturers or Brand Owners or marketing companies of sanitary napkins and diapers** should explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.
 - All such manufacturers, brand owners or marketing companies** should educate the masses for wrapping and disposal of their products.
 - Non-recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilized for generating energy either or through refuse derived fuel or by giving away as feedstock for preparing refuse derived fuel.
 - High calorific wastes shall be used for **co-processing** in cement or thermal power plants.
 - Construction and demolition waste** should be stored, separately disposed off,

- as per the Construction and Demolition Waste Management Rules, 2016
- An event, or gathering organiser of more than 100 persons at any licensed/unlicensed place, should ensure segregation of waste at source and handing over of segregated waste to waste collector or agency, as specified by local authority.
- Construction of landfill on the hill shall be avoided. Suitable land shall be identified in the plain areas, down the hill, **within 25 kilometers** for setting up sanitary landfill.

5) Super Cyclonic Storm Amphan

What is a super cyclone?

- According to the World Meteorological Organisation, a cyclonic disturbance in which **maximum wind speed is 120 knots** and above (222 km/h and above) is termed as a super cyclone. (*1 Knot is equal to 1.852 kilometres per hour*)
- A rapidly-rotating storm system characterised by a **spiral arrangement of thunderstorms rains, a low-pressure centre, strong winds**, is what is known as a super cyclone.
- They form over large bodies of warm water, deriving their energy from water evaporation from the surface of the ocean.
- This water recondenses into clouds and rain when moist air rises and cools to saturation.

Why in the news?

- Super Cyclonic Storm Amphan, a powerful and catastrophic tropical cyclone, caused widespread damage in Eastern India, specifically West Bengal.
- Since 1999, **Amphan is the third super cyclone** to occur in the North Indian Ocean region, which includes the Bay of Bengal, Arabian Sea and the northern part of the Indian Ocean.
- The other two super cyclones were **Kyarr in 2019 and Gonu in 2007**.

Conditions that favoured Amphan Super cyclone

- High sea surface temperatures
- Low vertical shear winds and
- Enough moisture in the middle layers of the atmosphere

Warming Bay of Bengal

- Weather scientists say the rapid intensification of Amphan might **signal a warming Bay of Bengal**.
- It is probable that due to the Covid-19 pandemic and reduced human and economic activity, the amount of aerosol (pollutants) in the atmosphere in South Asia decreased rapidly.
- This **reduced concentration of aerosols** may have added to the already high sea surface temperatures in the Bay of Bengal, causing the rapid intensification of Amphan.

Issues to be considered

- Irrespective of this reason, there is no denying that **cyclones are becoming more severe and frequent** in recent decades.
- Severity:** An analysis shows that from 2015 to 2017 five of the 11 cyclones that formed in the North Indian Ocean had turned severe.
- Frequency:** Between 2011 and 2019, as many as 28 cyclones have developed, the highest in the last four decades.
- They are now occurring at times when they usually did not. For example, before 2011, cyclones never occurred in January, March and April. In the last decade, cyclones have occurred every month except February and August.
- Since cyclones form over warm sea surfaces (above 27° C), analysis shows **seas are now warm throughout the year**, leading to an increased possibility of cyclone formation at any time of the year.

6) Dibru saikhowa National Park

About the National Park

- Dibru-Saikhowa is a **National Park** as well as a **Biosphere Reserve** situated in the south bank of the river **Brahmaputra** in the extreme east of **Assam state** in India.
- The Dibru-Saikhowa National Park lies at the **intersection of two of the world's 34 biodiversity hotspots**—the Indo-Myanmar hotspot and the Eastern Himalaya hotspot.
- Flora and Fauna:** The forest type of Dibru-Saikhowa comprises semi-evergreen forests, deciduous forests,

- littoral and swamp forests and patches of wet evergreen forests.
- Known as the **only habitat of feral horses**, Dibru Saikhowa, is an island attached to some of the best birding habitats of the world. It is the **largest salix swamp forest** in north-eastern India.
- It is an identified **Important Bird Area (IBA) notified by the Birdlife International**, having more than 500 species of Birds including ruddy shelduck, bar-headed goose, falcated duck, ferruginous duck, northern pintail and the Eurasian wigeon.
- It also harbours critically endangered bird species such as the **Bengal florican, white winged duck, Greater adjutant stork, white-rumped vulture and slender-billed vulture**, as well as the very rare and endemic **black-breasted parrotbill**.
- It has also recorded 104 species of fish, including the endangered **Gangetic river dolphins**.
- The park is also home to tigers, elephants, wild buffaloes, leopards, hoolock gibbons, capped langurs, slow lorises.

Why in the news?

- A gas well on fire in Assam posed an existential threat to Assam's Dibru-Saikhowa National Park.

7) Our daily dose of antibiotics

What are antibiotics?

- Antibiotic, chemical substance produced by a living organism, generally a microorganism, that is detrimental to other microorganisms.

Why in the news?

- A Delhi-based non-profit **Centre for Science and Environment** found that as dairy farmers inject antibiotics in their livestock, chances are high that these are passed on to humans through milk.

India's position

- India is the world's largest milk producer. It produced a massive 187.7 million tonnes in 2018-19.
- While urban areas consume 52 percent of the total milk, rural regions use the rest.
- The unorganised sector, comprising milkmen and contractors, cater to 60 percent of the milk in urban areas.

How good is the milk that we consume?

- In 2018, when **Food Safety and Standards Authority of India (FSSAI)** tested milk samples from organised and unorganised sectors across the country, it found **77 of them had antibiotic residues beyond permissible limits**.

Why do farmers inject antibiotics?

- To treat **mastitis in cattle** caused due to poor farming and milking hygiene.
- Medicines are easily available over the counter**, without doctor's prescription.
- Department of Animal Husbandry (DAHD) Farmer Manual recommends use of only penicillin, gentamicin, streptomycin and enrofloxacin on animals, however many farmers uses **ceftiofur, amoxicillin, cloxacillin and ceftriaxone-sulbactam** on their own.
- Dairy cattle also contract **bacterial diseases** like hemorrhagic septicemia, black quarter, brucellosis, and viral ailments like foot and mouth disease.

So what is the issue?

- The antibiotics are injected in the animal's muscle or vein. At times, these are injected directly into the mammary glands.
- Most farmers give the injections without knowing which antibiotic should be given and in what dose. As a result, they end up **underdosing or overdosing the animal**.
- Some big farmers practise "dry cow therapy" to prevent mastitis. When an animal is not lactating, long-acting antibiotics are injected inside its milking glands to prevent the disease.
- As farmers overuse antibiotics, it **makes the healthy milk that we drink unhealthy**.

What can reduce bacterial infection and avoid antibiotic misuse?

- The Central Drugs Standard Control Organisation must regulate over-the-counter sale of antibiotics.
- The Department of Animal Husbandry and Dairying (DAHD) should develop standard treatment guidelines to reduce the misuse of antibiotics.

- The outreach of the veterinary extension system should be strengthened.
- FSSAI should set tolerance limits for antibiotics such as **amoxicillin, ceftriaxone and gentamicin**, which are used in dairy animals, and not listed by FSSAI.
- Clean milking glands before and after milking the animal
- Prevent the animal from sitting at least 30 to 45 minutes after milking
- Promptly inform authorities for early disease control.

Other measures

- Keep cattle sheds clean, dry

Flora and Fauna

1) Asiatic Lion

About



- Asiatic lions are slightly smaller than African lions. They have shorter manes (hair around their face) than African counterparts.
- Asiatic lions were once distributed upto the state of West Bengal in east and Rewa in Madhya Pradesh, in central India.
- At present **Gir National Park and Wildlife Sanctuary, Gujarat**, is the only abode of the Asiatic lion.
- They are listed in **Schedule I** of Wildlife (Protection) Act 1972, in **Appendix I** of CITES and as **Endangered** on IUCN Red List.

Gir National Park and Wildlife Sanctuary

- These forests are **dry deciduous forests** in the semi-arid western part of India.
- Seven major perennial rivers pass through Gir forest, named the **Hiran, Saraswati, Datardi, Shingoda, Machhundri, Ghodavadi and Raval**.
- Traditionally a community called "**Maldharis**" have survived through the ages by having a symbiotic relationship with the lion. They are **religious pastoral communities** living in Gir. Their settlements are called "**nesses**".

Why in News?

- As per the latest forest department data, Gir National park has registered nearly 30% increase in Asiatic lions' population.

The number of lions has increased from 523 lions in 2015 to estimated 674 lions in 2020.

- Community participation, emphasis on technology, wildlife healthcare, proper habitat management and steps to minimise human-lion conflict have helped in increase of lion's population.

2) India's first lichen park

What is lichen?

- Lichen is a composite organism that arises from algae or cyanobacteria living among filaments of multiple fungi species in a **mutualistic relationship**. They come in many colours, sizes and forms.
- The properties are sometimes plant-like but lichens are **not plants**. Lichens may have tiny, leafless branches, flat leaf-like structures.
- Lichen needs pure air to grow. If pollution levels increase in a certain area, the lichen species decline there. So it serves as a **natural indicator of pollution levels** in an area.

Why in News?

- With an aim to protect, conserve and cultivate lichen, Uttarakhand Forest Department has developed the country's first lichen park in Munsiyari in Pithoragarh district, Uttarakhand.
- Considered most significant **bio-indicator of ecosystem fluctuations** as they are more sensitive towards habitat and climate changes, lichen species are facing many threats and continue to decline from some areas of Himalayan regions because of overexploitation of natural resources, mounting pressures of urbanization, habitat-destruction, deforestation and increasing pollution.

Agriculture

1) Minimum Support Price

About MSP

- Minimum Support Price (MSP) is a form of **market intervention** by the Government to insure agricultural producers against any sharp fall in farm prices.
- The minimum support prices are announced by the Government at the **beginning of the sowing season** for certain crops on the basis of the recommendations of the **Commission for Agricultural Costs and Prices (CACP)**.

About CACP

- The Commission for Agricultural Costs & Prices is an attached office of the **Ministry of Agriculture and Farmers Welfare**. It came into existence in 1965.
- It is mandated to recommend MSPs to incentivize the cultivators to adopt modern technology and raise productivity and overall grain production in line with the emerging demand patterns in the country.
- As of now, CACP recommends MSPs of **23 commodities**, which comprise **7 cereals** (paddy, wheat, maize, sorghum, pearl millet, barley and ragi), **5 pulses** (gram, tur, moong, urad, lentil), **7 oilseeds** (groundnut, rapeseed-mustard, soyabean, seasmum, sunflower, safflower, niger seed), and **4 commercial crops** (copra, sugarcane, cotton and raw jute).
- CACP submits its recommendations to the government. The **Cabinet Committee on Economic Affairs (CCEA)** takes a **final decision** on the level of MSPs and other recommendations made by CACP.

Why in News?

- The Cabinet Committee on Economic Affairs has approved an increase in the MSPs for all mandated kharif crops, including paddy, pulses and cotton, for the 2020-21 marketing season.
- The increase in MSP for kharif crops is in line with the Union Budget 2018-19 announcement of fixing the **MSPs at a level of at least 1.5 times of the all-India weighted average cost of production**, aiming at reasonably fair remuneration for the farmers.

How is the production cost arrived at?

- As per CACP, there are three definitions of production cost which includes **A2, A2+FL and C2**.
- A2 covers **all paid-out expenses**, including cash and in kind. It includes costs on seeds, chemicals, hired labour, irrigation, fertilisers and fuel.
- A2+FL covers **actual paid cost and also unpaid family labour**.
- C2 cost method is more comprehensive and makes the calculation by including a wider range of inputs. It includes **actual paid out costs, imputed value of family labour, interest on the value of owned capital assets, rent paid for leased-in land and the rental value of owned land**.
- Farmers have been demanding that MSP should be 1.5 times of C2. The **National Commission on Farmers (NCF)** headed by MS Swaminathan also recommended the C2 method to calculate MSP. However, at present, MSP is calculated based on the A2+FL method.

2) Sahakar Mitra

What's in the news?

- The Ministry of Agriculture & Farmers' Welfare has launched a Scheme on Internship Programme (SIP)- **Sahakar Mitra**.
- This scheme is an initiative of **National Cooperative Development Corporation (NCDC)** which will provide the young professionals an opportunity of practical exposure and learning from the working of NCDC and cooperatives as a paid intern.
- Sahakar Mitra would also provide an opportunity to professionals from academic institutions to develop leadership and entrepreneurial roles through cooperatives as **Farmers Producers Organizations (FPO)**.

Eligibility

- Under the scheme, professional graduates in disciplines such as Agriculture and allied areas, IT etc. will be eligible for internship.
- Professionals who are pursuing or have completed their MBA degrees in Agribusiness, Cooperation, Finance,

International Trade, Forestry, Rural Development, Project Management, etc. will also be eligible.

About NCDC

- The National Cooperative Development Corporation is a **statutory body** established in 1963 under the **Ministry of Agriculture & Farmers Welfare**.
- Its objective is to plan and promote programmes for production, processing, marketing, storage, export & import of agricultural produce, food stuff, industrial goods, livestock, certain other notified commodities and services on cooperative principles.
- The NCDC has the unique distinction of being the **sole statutory organisation** functioning as an apex financial and developmental institution exclusively devoted to the **cooperative sector**.

About FPOs

- A FPO, formed by a group of farm producers, is a registered body with producers as shareholders of the organisation.
- It deals with business activities related to farm produce and works for the benefit of member producers.

3) Water Management: Towards Sustainable Agriculture

Sustainable Agriculture

- Sustainable agriculture is a way of farming according to the location-specific ecosystem and study of relationships between organisms and their environment and is aimed at meeting the needs of the present generation without endangering the resource base of the future generations.
- The sustainability in agriculture primarily depends upon the availability of water in its optimum quantity and acceptable quality.

Efficient Water Management Practices

Laser Land Levelling

- Proper land levelling increases the water application efficiency which leads to higher yields as well as rise in water use efficiency. It also has a direct impact on the nutrient use efficiency.

Irrigation Scheduling

- Irrigation scheduling is the decision-making process for determining **when to irrigate the crops and how much water to apply**.

Methods of Irrigation

- Once the water requirement of crops is quantitatively and temporally determined then methods of irrigation make water available to crop plants.

Check Basin Irrigation:

- The check basin method of irrigation is the most popular among surface irrigation methods which involves the application of water by gravity flow to the surface of the field.
- Check basin is the most widely used method among Indian farmers in different crops and cropping systems as it is the easiest and least costly method but is usually **highly inefficient**.

Furrow Irrigation:

- The furrow method of irrigation is generally used to **irrigate row crops and vegetables**, and is suited to soils in which the infiltration rates are between 0.5 and 2.5 cm/hr.

Surge Flow Irrigation:

- Surge flow irrigation, the **intermittent application of water** in a series of on and off modes of constant or variable time spans, has the potential of reducing intake and percolation losses (which are major limitations of furrows), increasing the irrigation efficiencies and conserving irrigation water.

Micro-irrigation:

- Sprinkler Irrigation:** Water is pumped through pipes and then sprayed onto the crops through rotating sprinkler heads and is more efficient than surface irrigation but is **costlier to install and operate** because of the need for pressurised water.
- Low Energy Precision Application (LEPA):** In this system the water is delivered to the crops from drop tubes that extend from the sprinkler's arm.
- Drip Irrigation:** Drip and micro-sprinkler irrigation systems, which apply water slowly on or below the soil surface as discrete or continuous drips, tiny streams, or miniature spray is often preferred over other irrigation methods because of its **high (90 percent) water application**

efficiency and have been proved as one of the best ways to **increase water productivity**.

- **Water logging and salinity** are also completely absent under the drip method of irrigation.
- **Fertigation:** The application of fertilisers through the irrigation system (fertigation) became a common practice in modern irrigated agriculture. Thus, the soluble fertilisers at concentrations required by crops are applied through the irrigation system to the wetted volume of the soil.
- **Subsurface Drip Irrigation (SDI):** It is a low-pressure, low volume irrigation system that uses buried tubes to apply water. The applied water moves out of the tubes by soil matric suction. Wetting occurs around the tube and water moves out in the soil all directions.

Deficit Irrigation Practices:

- At **non-sensitive growth stages where irrigation is withheld** is called deficit irrigation and is usually prevalent in arid and semi-arid regions where water availability is usually limited.
- **Regulated Deficit Irrigation (RDI):** RDI is an optimising strategy under which the crop is exposed to certain levels of water stress either during a particular period or throughout the growing season and will result in **increased Water Use Efficiency (WUE)** of the crop.
- **Partial Root Drying (PRD):** PRD is a new irrigation technique that subjects one half of the root system to dry or drying conditions while the other half is irrigated. Wetted and dried sides of the root system alternate on a 7–14 day cycle.
- PRD uses biochemical responses of plants to water stress to achieve balance between vegetative and reproductive growth.

Agronomic Practices

Contour Tillage:

- Soil cultivation is made along the land slope and the soil is left with small furrows and ridges that prevent runoff. This technique is also effective to **control erosion** and may be applied to row crops and small grains provided that field slopes are low.

Broad Bed Planting:

- Cultivation of crops on broad beds and irrigation is applied in furrows and is

typically suitable for close planted field crops and horticultural row crops.

Conservation Tillage (CT):

- CT includes **zero tillage** and **retention of crop residuals** on the soil surface at planting. Crop residues act as mulches and reduce evaporation losses and protect the soil from direct impact of raindrops, thus controlling crusting and sealing processes.
- CT helps to maintain high levels of organic matter in the soil thus it is highly effective in improving soil infiltration and controlling erosion which results in an increase of WUE.

Mulch:

- Mulching with crop residues on soil surface shades the soil, slows water overland flow, improves infiltration conditions, reduces evaporation losses and also contributes to control of weeds and therefore of non-beneficial water use.

Addition of Organic Manures:

- Increasing or maintaining the amount of organic matter in the upper soil layers provides for better soil aggregation, reduced crusting or sealing on soil surface and increased water retention capacity of the soil.

Addition of Clay or Hydrophilic Compound:

- This technique increases the water retention capacity of the soil and controls deep percolation. Thus, water availability in soils with low water holding capacity is increased.

Control of Acidity:

- Lime application to soils with high pH favours more intensive and deep rooting, better crop development and contributes to improved soil aggregation, thus producing some increase in soil water availability.

Weed Control Measure:

- Adoption of appropriate weed control techniques to alleviate competition for water and transpiration losses by weeds is very important agronomic practice to increase water use efficiency in different crops and cropping systems.

Integrated Pests Management (IPM):

- IPM techniques aim to increase crop productivity with the same amount of other inputs like water, fertilisers etc.

4) SMART Agriculture

About

- Smart agriculture is the all-new agricultural production mode and ecosystem which is based on **digital agriculture** and **precision agriculture**.
- Digital agriculture digitises the planning, process and result of agricultural production, such as Big Data, AI, Cloud Computing and Blockchain. Precision agriculture uses information technology to achieve precision management, such as drones, robots and intelligent irrigation.

Transformative Discoveries for Smart Agriculture

Internet of Things (IoT):

- IoT is described as a network of physical objects. These can be “things” that can be embedded with technologies, software or sensors which further helps in connecting or the exchange of data with other devices or systems via the internet or vice versa.
- It is estimated that the IoT has the potential to increase agricultural productivity by 70 percent by 2050.

Artificial Intelligence (AI):

- It is the science of instilling intelligence in machines so that they are capable of doing tasks that traditionally required the human mind. AI combines automation, robotics, and computer vision.
- Integration of AI and IoT devices further improves the **growing and selling processes via predictive analytics**. These programmes will help farmers determine which crops to grow and anticipate **potential threats** by combining historical information about weather patterns and crop performance with real-time data.

Blockchain:

- Blockchain works by mapping data and providing it to users along the value chain simply by scanning a barcode. These barcodes are applied and linked throughout the value chain automatically by grading and sorting robotics.
- It has the potential of addressing the challenge of creating a more transparent, authentic, and trustworthy digital record of the journey that food and other physical products take across the supply chain.

Robotics:

- Drones with AI-enabled vision processing capabilities are being used to **assess the real situation on the condition of crops on ground**. Autonomous drones and the data they provide can help in crop monitoring, soil assessment, plant emergence and population, fertility, crop protection, crop insurance reporting in real time, irrigation and drainage planning and harvest planning. Eg : Agribot drones

Autonomous Swarms:

- Autonomous swarms combine the technology of **swarm robotics with a blockchain-based backend**.
- Swarm robotics involves multiple copies of the same robot, working independently in parallel to achieve a goal too large for any one robot to accomplish.
- The new approach produces greater yields at reduced cost, while raising the quality of the crop.

Artificial Intelligence of Things (AIoT):

- AIoT is a combination of AI and IoT.
- Devices empowered with the combination of AI and IoT can analyse data and make decisions and act on that data **without involvement by humans**.

Big Data:

- It is a combination of technology and analytics that can collect and compile novel data and process it in a more useful and timely way to **assist decision making**.
- Big Data and analytics have the potential to add value across each step and can streamline food processing value chains such as selection of right agri-inputs, monitoring soil moisture, tracking prices of market, controlling irrigations, finding the right selling point and getting the right price.

Initiatives of Smart Agriculture

- NITI Aayog has come up with a **National Strategy for Artificial Intelligence in India**, which is aimed at focusing on economic growth and social inclusion.
- In a bid to push innovative technologies in the agriculture sector, the government has also launched **AGRI-UDAAN** to mentor 40 agricultural start-ups from cities and enable them to connect with potential investors.

- AGRI UDAAN is a Food & Agribusiness Accelerator focused on food and Agribusiness startups through rigorous mentoring, industry networking and investor pitching.

Economy

1) Fugitive Economic Offenders

Fugitive Economic Offenders Act, 2018

- According to the Act, a fugitive economic offender is an individual who has committed specified economic offences involving an amount of Rs 100 crore or more and has **absconded from India or refused to come back to India to avoid criminal prosecution.**
- The Act is basically aimed at acting as a deterrent for those who commit economic offences and flee, thereby, defying the Rule of Law in India and evading jurisdiction of Indian justice system.
- Under the Act, upon declaration as FEO, the **properties and assets may be confiscated** and vested by the Centre. This includes not just the properties directly owned by the FEO and affiliated organisations but also any and all **benami properties owned by the offender.**
- Courts and tribunals across the country have the power to **disentitle anyone declared as a FEO from filing or defending any civil case** – even if that case has nothing to do with their alleged economic offence.

Why in News?

- A Special Court has permitted the **Enforcement Directorate** to confiscate properties of diamond merchant Nirav Modi within a month. He was declared a fugitive economic offender in 2019.
- This is for the first time an agency will be able to confiscate the property of an economic offender since the FEO Act, 2018 came into force.

About ED

- Enforcement Directorate (ED) is a specialized financial investigation agency under the **Department of Revenue, Ministry of Finance**, which enforces the following laws: -
- Foreign Exchange Management Act, 1999 (FEMA)** - A Civil Law, with officers empowered to conduct investigations into suspected contraventions of the Foreign Exchange Laws and Regulations, adjudicate, contraventions, and impose penalties on those adjudged to have contravened the law.

- Prevention of Money Laundering Act, 2002 (PMLA)** - A Criminal Law, with the officers empowered to conduct investigations to trace assets derived out of the proceeds of crime, to provisionally attach/ confiscate the same, and to arrest and prosecute the offenders found to be involved in Money Laundering.
- ED was established in 1956 with its headquarters at New Delhi.

2) Rating agencies

What is a Rating Agency?

- A rating agency is a company that **assesses the financial strength of companies and government entities**, especially their ability to meet principal and interest payments on their debts.
- The rating shows an agency's level of confidence that the borrower will honour its debt obligations as agreed. Each agency uses unique letter-based scores to indicate if a debt has a low or high default risk and the financial stability of its issuer.
- The debt issuers may be sovereign nations, local and state governments, special purpose institutions, companies, or non-profit organizations.

How ratings affect the market?

- At the corporate level, companies planning to issue a security must find a rating agency to rate their debt. Rating agencies such as Moody's, Standards and Poor's, and Fitch perform the rating service for a fee. **Investors rely on the ratings to decide on whether to buy or not to buy a company's securities.**
- At the country level, investors rely on the ratings given by the credit rating agencies to make **investment decisions**. Many countries sell their securities in the international market, and a good credit rating can help them access high-value investors. A favorable rating may also **attract other forms of investments** like foreign direct investments to a country.
- A rating downgrade means that bonds issued by the governments are now "riskier" than before. Lower risk is better because it allows governments and

companies of that country to **raise debts at a lower rate of interest.**

Why in News?

- Moody's Investors Service ("Moody's"), a leading rating agency, has downgraded the Government of India's foreign-currency and local-currency long-term issuer ratings to "Baa3" from "Baa2". It stated that the outlook remained "negative".
- A "negative" implies India could be rated down further.

3) Monetary Policy Committee

About MPC

- The Monetary Policy Committee (MPC) is a committee of the RBI which is entrusted with the task of fixing the benchmark policy interest rate (repo rate) to contain inflation within the specified target level (**CPI within 4 percent with a band of (+/-) 2 percent**).
- The Reserve Bank of India Act, 1934 was amended in 2016 to provide for a **statutory and institutionalised framework for the MPC**.
- The MPC has **six members**
- **RBI Governor (Chairperson)**, RBI Deputy Governor in charge of monetary policy, one official nominated by the RBI Board and remaining 3 members would represent the Government.
- The MPC makes decisions based on **majority vote**. In case of a tie, the **RBI governor will have a second or casting vote**.

Why in News?

- The RBI is seeking extension of the tenure of external members of the Monetary Policy Committee due to the Covid-19 pandemic.
- Three of the six-member MPC are external representatives of the government and their appointment is for a **term of four years** and they are **ineligible for re-appointment**.

4) Insolvency and Bankruptcy Code

About IBC

- The Insolvency and Bankruptcy Code (IBC) creates a time-bound process for insolvency resolution of companies and individuals. These processes will be completed within **180 days** (unless extended by a one-time extendable period of **90 days**). If insolvency cannot be resolved, the assets of the borrower may be sold to repay creditors (known as *liquidation*).
- The resolution processes are conducted by licensed **insolvency professionals (IPs)**. These IPs are members of **insolvency professional agencies (IPAs)**.
- **Information utilities (IUs)** are established to collect, collate and disseminate financial information to facilitate insolvency resolution.
- The **National Company Law Tribunal** adjudicates insolvency resolution for companies and Limited Liability Partnerships. The **Debt Recovery Tribunal (DRT)** adjudicates insolvency resolution for individuals and partnership firms.
- The **Insolvency and Bankruptcy Board of India (IBBI)** regulates the functioning of IPs, IPAs and IUs.
- IBC was later amended with the provision to **bar promoters from bidding for their own companies**. It prevented defaulters from regaining control of their companies at a cheaper value
- The code was again amended in 2019 which mandated a deadline for the completion of the resolution process **within 330 days, including all litigation and judicial processes**.

Why in News?

- The Union Cabinet cleared an ordinance to suspend initiation of bankruptcy proceedings against companies under the Insolvency and Bankruptcy Code for a period of six months, which could be extended to one year.
- The move is expected to provide relief for corporates as the pandemic and subsequent lockdown had significantly impacted economic activities.

5) Periodic Labour Force Survey

About PLFS

- In India, the National Sample Survey Organisation (NSSO) has been **quinquennially** (over a period of five years) collecting data on employment and unemployment but from 2017 onwards, the Periodic Labour Force Survey (PLFS) was **launched by the NSSO**.
- It aimed to provide **quarterly employment and unemployment data**
- Under the PLFS, households are selected in **both rural and urban areas** by providing 75 per cent weightage to households where at least one member has secondary education (Class 10) or above.
- PLFS is India's **first computer-based survey** which gives estimates of Key employment and unemployment Indicators like the Labour Force Participation Rates (LFPR), Worker Population Ratio (WPR), Unemployment Rate (UR), etc. These indicators are defined as follows:
- **Labour Force Participation Rate (LFPR)**: LFPR is defined as the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.
- **Worker Population Ratio (WPR)**: WPR is defined as the percentage of employed persons in the population.
- **Unemployment Rate (UR)**: UR is defined as the percentage of persons unemployed among the persons in the labour force.
- **Activity Status- Usual Status**: The activity status of a person is determined on the basis of the activities pursued by the person during the specified reference period. When the activity status is determined on the **basis of the reference period of the last 365 days preceding the date of survey**, it is known as the usual activity status of the person.
- **Activity Status- Current Weekly Status (CWS)**: The activity status determined on the **basis of a reference period of last 7 days preceding the date of survey** is known as the current weekly status (CWS) of the person.
- The PLFS also gives the distribution of educated and unemployed people, which in turn can be used as a basis for skilling of youth to make them more employable by industry.

Objective of PLFS

- The objective of PLFS is primarily twofold:
- to estimate the key employment and unemployment indicators (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in the **short time interval of three months for the urban areas only** in the **Current Weekly Status**.
- to estimate employment and unemployment indicators in **both Usual status and CWS in both rural and urban areas annually**.

Why in News?

- National Sample Survey Organisation has released the latest Periodic Labour Force Survey.

Highlights of the report

- India's **unemployment rate** improved from the 45-year high of 6.1% in 2017-18 to 5.8% in 2018-19. The report shows the dip came across all categories, though women and rural workers showed the most improvement.
- **Women's unemployment** fell from 5.7% to 5.2%, while **male unemployment** only fell from 6.2% to 6%. **Urban unemployment** was still at a high of 7.7% in 2018-19, a marginal drop from 7.8% in 2017-18, while **rural unemployment** fell from 5.3% to 5%.
- The **labour force participation rate** also improved marginally, from 36.9% in 2017-18 to 37.5% in 2018-19.
- The **female participation rate** improved in both urban and rural India during the period under review, going up to 18.6% in 2018-19 from 17.5% the year before.
- The **worker population ratio** also increased to 35.3 per cent from 36.9 per cent during 2017-18.
- Experts feel it would be a challenge to retain the falling trend in unemployment rate in 2019-20, which has witnessed a long nationwide lockdown between March and June to prevent the spread of Covid-19, resulting in job losses across sectors.

6) Commercial coal mining

Background

- As a part of the announcements made under the **Atmanirbhar Bharat Abhiyan**, the Central government announced that it would allow commercial mining in the coal sector.

What is commercial mining?

- Commercial mining **allows the private sector** to mine coal commercially on a **revenue-sharing model without placing any end-use restrictions**.
- Removing end-use restrictions marks the **end of the captive mining regime**.
- Captive mining is the coal mined for a specific end-use by the mine owner, but not for open sale in the market.*
- A revenue sharing mechanism instead of the earlier fixed price per tonne will introduce competition, transparency and private sector participation in the market.*
- The private firms will have the option of either gasification of the coal or exporting it. They can also use it in their own end-use plants or **sell them in the markets**.
- Further, with **100 per cent foreign direct investment** allowed in the coal sector, global companies can also participate in the auctions.
- The complete freedom to decide on sale, pricing, and captive utilisation is expected to attract many private sector firms to participate in the auction process.
- The government expects these steps will generate employment and reduce India's import bill.

Was the private sector never allowed in mining?

- Private sector participation was permitted until the early 1970s. The Indira Gandhi government announced the **nationalisation of the coal blocks** in two phases **between 1971 and 1973**.
- The recently announced reforms will effectively **end state-owned Coal India Ltd (CIL)'s monopoly** over mining and selling of coal.

Is this the first attempt by govt to open up the sector?

- After the Supreme Court cancelled the coal block allocations made to the private sector in 2014, the central government had brought in the Coal Mines (Special provisions) Act of 2015 to return these coal blocks to the private sector through **auctions**.
- But there had been **end-use restrictions** and the private sector was **not allowed to trade into the market** making it unattractive for the private sector.
- Further in 2018, private sector firms were allowed to **sell upto 25 per cent of the output** in the market, but this also saw a lukewarm response from the private sector.

Why in News?

- Prime Minister Narendra Modi unveiled the auction process of 41 coal blocks - spread across five states of Maharashtra, Jharkhand, Chhattisgarh, Odisha and Madhya Pradesh - for commercial mining through video-conference.

Significance

- The auction for commercial mining was a major step towards making India self-reliant in the energy sector.
- The government has also decided to spend Rs 50,000 crore on creating **infrastructure for coal extraction and transport**. This would also create job opportunities for locals closer to their homes.
- Despite India having the **world's fourth largest coal reserve** and being the **second largest producer**, the country was the **second largest coal importer**. The sector had been kept out of competition and devoid of transparency, hampering investment and efficiency.
- Fully opening up the sector would increase competition, capital, participation and technology. It would ensure new private players did not face the problem of finance.

Science and Technology

1) Artificial Intelligence of Things

What Is Artificial Intelligence?

- Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.
- The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving.

Applications of Artificial Intelligence

- The applications for artificial intelligence are endless. The technology can be applied to many different sectors and industries.
- AI is being tested and used in the **healthcare industry** for dosing drugs and different treatment in patients, and for surgical procedures in the operating room.
- Other examples of machines with artificial intelligence include **computers that play chess and self-driving cars**.
- It also has applications in the **financial industry**, where it is used to detect and flag activity in banking and finance such as unusual debit card usage and large account deposits.

What is the Internet of Things?

- The Internet of Things (IoT) describes the **network of physical objects**—“things”—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. These devices range from ordinary household objects to sophisticated industrial tools.
- The goal behind the Internet of things is to have devices that self-report in real-time, improving efficiency and bringing important information to the surface more quickly without depending on human intervention.

Applications of IoT

- **Smart homes** equipped with smart thermostats, smart appliances and connected heating, lighting and electronic devices can be controlled remotely via computers and smartphones.
- **Wearable devices** with sensors and software can collect and analyze user data, sending messages to other technologies

about the users with the aim of making users' lives easier and more comfortable.

- In healthcare, IoT offers many benefits, including the ability to **monitor patients** more closely using an analysis of the data that's generated.
- In agriculture, IoT-based **smart farming systems** can help monitor, for instance, light, temperature, humidity and soil moisture of crop fields using connected sensors.
- IoT is also instrumental in **automating irrigation systems**.
- In a **smart city**, IoT sensors and deployments, such as smart streetlights and smart meters, can help alleviate traffic, conserve energy, monitor and address environmental concerns, and improve sanitation.

What is AIoT?

- The Artificial Intelligence of Things (AIoT) is the **combination of artificial intelligence technologies with the Internet of Things** infrastructure to achieve more efficient IoT operations, improve human-machine interactions and enhance data management and analytics.
- AIoT is transformational and mutually beneficial for both types of technology as AI adds value to IoT through machine learning capabilities and IoT adds value to AI through connectivity, signaling and data exchange.
- AI can be used to transform IoT data into useful information for improved decision making processes.

Why in News?

- Smartphone maker Realme said it will launch a number of AIoT products soon.

2) Chikungunya

What is Chikungunya?

- Chikungunya is a **mosquito-borne viral disease** first described during an outbreak in southern Tanzania in 1952.
- It is an **RNA virus** that belongs to the **alphavirus genus of the family Togaviridae**.

Signs and symptoms

- Chikungunya is characterized by an abrupt onset of **fever** frequently accompanied by **joint pain**.
- Other common signs and symptoms include muscle pain, headache, nausea, fatigue and rash.
- The disease shares some clinical signs with dengue and zika, and can be misdiagnosed in areas where they are common.

Transmission

- The virus is transmitted from human to human by the bites of **infected female mosquitoes**.
- Most commonly, the mosquitoes involved are **Aedes aegypti** and **Aedes albopictus**, two species which can also transmit other mosquito-borne viruses, including dengue.

Treatment

- There is **no specific antiviral drug treatment** for chikungunya.
- Treatment is directed primarily at relieving the symptoms, including the joint pain using anti-pyretics, optimal analgesics and fluids.
- There is **no commercial chikungunya vaccine**.

Why in News?

- Studying the geographic distribution and evolution of the chikungunya virus over the period from 2005-2018, a team from ICMR-National Institute of Virology, Pune, has noted **India as an endemic reservoir**

for the virus with persistent global transmissions from the country.

3) DNA and RNA

What are nucleic acids?

- Nucleic acid is a naturally occurring chemical compound that is capable of being broken down to yield phosphoric acid, sugars, and a mixture of organic bases (purines and pyrimidines).
- Nucleic acids are the **main information-carrying molecules** of the cell.
- By directing the process of protein synthesis, they **determine the inherited characteristics of every living thing**.
- The two main classes of nucleic acids are **deoxyribonucleic acid (DNA)** and **ribonucleic acid (RNA)**.

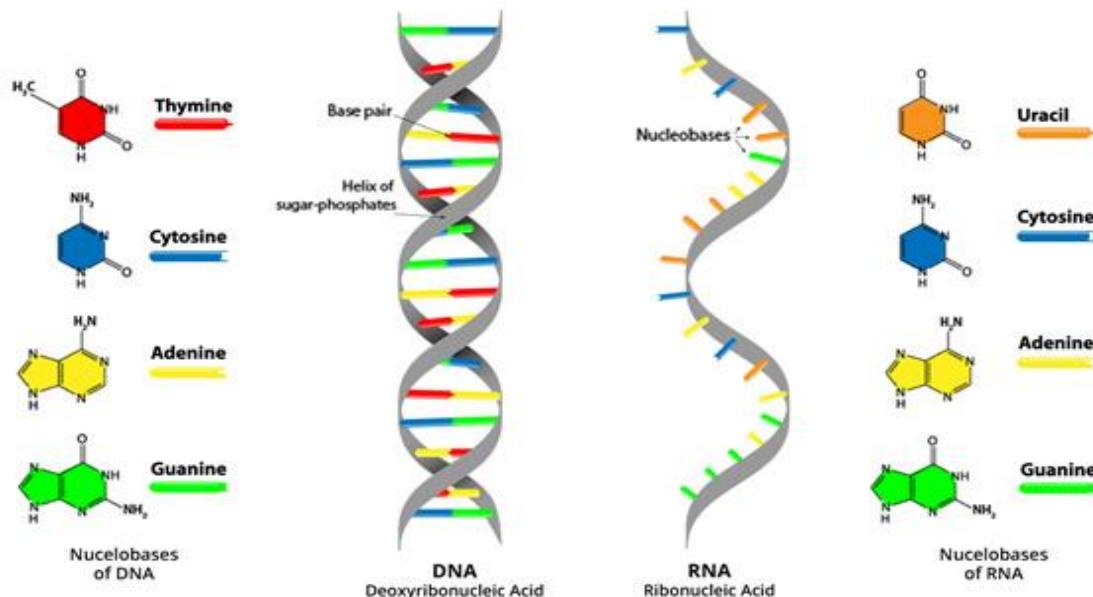
DNA and RNA

- DNA** is the master blueprint for life and constitutes the **genetic material** in all free-living organisms and most viruses.
- RNA** is the **genetic material of certain viruses**, but it is **also found in all living cells**, where it plays an important role in certain processes such as the **making of proteins**.
- Although DNA and RNA **both carry genetic information**, there are quite a few differences between them.

Differences

COMPARISON	DNA	RNA
• <i>Function</i>	<ul style="list-style-type: none"> DNA replicates and stores genetic information. It is a blueprint for all genetic information contained within an organism 	<ul style="list-style-type: none"> RNA converts the genetic information contained within DNA to a format used to build proteins, and then moves it to ribosomal protein factories.
• <i>Structure</i>	<ul style="list-style-type: none"> DNA consists of two strands, arranged in a double helix. These strands are made up of subunits called nucleotides. Each nucleotide contains a phosphate, a 5-carbon sugar molecule and a nitrogenous base. 	<ul style="list-style-type: none"> RNA only has one strand, but like DNA, is made up of nucleotides. RNA sometimes forms a secondary double helix structure, but only intermittently.
• <i>Length</i>	<ul style="list-style-type: none"> DNA is a much longer polymer than RNA. A chromosome, for example, is a single, long DNA molecule, which would be several centimetres in length when 	<ul style="list-style-type: none"> RNA molecules are variable in length, but much shorter than long DNA polymers. A large RNA molecule might only be a few

	unravelled.	thousand base pairs long.
• Sugar	• The sugar in DNA is deoxyribose , which contains one less hydroxyl group than RNA's ribose.	• RNA contains ribose sugar molecules, without the hydroxyl modifications of deoxyribose.
• Bases	• The bases in DNA are Adenine ('A') , Thymine ('T') , Guanine ('G') and Cytosine ('C') .	• RNA shares Adenine ('A') , Guanine ('G') and Cytosine ('C') with DNA, but contains Uracil ('U') rather than Thymine.
• Base Pairs	• Adenine and Thymine pair (A-T) • Cytosine and Guanine pair (C-G)	• Adenine and Uracil pair (A-U) • Cytosine and Guanine pair (C-G)
• Location	• DNA is found in the nucleus , with a small amount of DNA also present in mitochondria.	• RNA forms in the nucleolus, and then moves to specialised regions of the cytoplasm depending on the type of RNA formed.
• Reactivity	• DNA is a more stable molecule than RNA, which is useful for a molecule which has the task of keeping genetic information safe.	• RNA is more reactive than DNA and is not stable in alkaline conditions.
• Replication	• DNA is self-replicating .	• RNA is synthesized from DNA .



- In some viruses RNA, instead of DNA carries the genetic information, which include retroviruses such as HIV and RNA viruses such as Ebola virus disease, SARS, COVID-19, rabies, common cold,

influenza, hepatitis C, hepatitis E, West Nile fever, polio and measles.

Unusual DNA and RNA

- While the most common form of DNA is a double helix, there is evidence for rare

- cases of branched DNA, quadruplex DNA, and molecules made from triple strands.
- Scientists have found DNA in which arsenic substitutes for phosphorus.
- Double-stranded RNA (dsRNA)** sometimes occurs. It is similar to DNA, except thymine is replaced by uracil.
- This type of RNA is found in some viruses. When these viruses infect eukaryotic cells, the dsRNA can interfere with normal RNA function and stimulate an interferon response.
- Circular single-strand RNA (circRNA)** has been found in both animals and plants. At present, the function of this type of RNA is unknown.

Why in News?

- Researchers at the Indian Institute of Technology Madras have identified a specific **microRNA (miRNAs)** called '**miR-155**' that is over-expressed in tongue cancer.
- The miRNAs affect cancer growth through inhibiting or enhancing the functions of certain proteins.

What are miRNAs?

- MicroRNAs (miRNAs) are **short non-coding RNAs** containing 20–24 nucleotides that participate in virtually all biological pathways in animals.
- They have been found to play important roles in many cancers, in carcinogenesis (start of cancer), malignant transformation and metastasis — the development of secondary cancer.
- The miRNAs associated with cancer are called '**Oncomirs**'.
- Many of the Oncomirs affect cancer by suppressing the performance of tumour-suppressing agents.
- Some of them can prevent the growth and spread of cancer cells and yet others prevent tumour growth itself.

4) Probiotics

What are probiotics?

- Probiotics are **live microorganisms** that may help to **prevent and treat some illnesses**.
- This includes **bacteria, yeasts** and **viruses** — with bacteria making up the vast majority.

- Promoting a **healthy digestive tract** and a **healthy immune system** are their most widely studied benefits.
- These are also commonly known as **friendly, good, or healthy bacteria**.
- Probiotics can be supplied through **foods, beverages, and dietary supplements**.

What is the Gut Microbiome?

- The 'gut microbiome' is made up of the trillions of microorganisms and their genetic material that **live in our intestinal tract**.
- These microorganisms, mainly comprising bacteria, are involved in functions critical to our health and wellbeing.
- These bacteria play a key role in digesting food we eat, and they help with absorbing and synthesising nutrients too.
- These are also involved in many other important processes including metabolism, body weight, and immune regulation, as well as brain functions and mood.

Why in News?

- A study by IIT Madras researchers of 36 strains of gut bacteria commonly found in the gut reveals their metabolism and could bring added rigour into the development of probiotics.

Gut bacteria

- The human gut microbiome has a huge number of beneficial bacteria, collectively called **commensals**, living in it.
- Key among these are the bacteria of the **Bifidobacterium genus**.
- Bifidobacterium adolescentis* and *B. longum* are found in the adult human gut whereas *B. bifidum* are found in the infant gut.
- Bifidobacterium* is one of the largest genera among gut bacteria and its species are known to be early colonisers of the breastfed infant gut.

5) LiDAR

What is LiDAR?

- Lidar, which stands for **Light Detection and Ranging**, is a **remote sensing** method which uses **light in the form of a pulsed laser** to measure ranges (variable distances) to the Earth.

- These light pulses—combined with other data recorded by the airborne system—generate **precise, three-dimensional information about the shape of the Earth and its surface characteristics.**
- A lidar instrument principally consists of a laser, a scanner, and a specialized GPS receiver.
- Airplanes and helicopters are the most commonly used platforms for acquiring lidar data over broad areas.
- Two types of lidar are **topographic** and **bathymetric**.
- Topographic lidar typically uses a near-infrared laser to map the land, while bathymetric lidar uses water-penetrating green light to also measure seafloor and riverbed elevations.

Applications

- Lidar systems allow scientists and mapping professionals to **examine both natural and manmade environments**

with accuracy, precision, and flexibility.

- It is commonly used by geologists and surveyors to **make high-resolution maps.**
- Some of its applications include
 1. Forest canopy measurement
 2. Hazard assessment
 3. Geologic mapping
 4. Agriculture
 5. River Survey
 6. Modelling Pollution
 7. Archeology and Building Construction
 8. Management of Coastline
 9. Urban Planning
 10. Oil and Gas Exploration

Why in News?

- A U.K. based team of archaeologists carried on their research on ancient Roman sites by using data collected through LiDAR.

Reports and Indices

1) Global Economic Prospects report

About the Report

- Global Economic Prospects is a **World Bank Group** flagship report that examines global economic developments and prospects, with a special focus on emerging markets and developing economies.
- It is issued **twice a year**, in January and June.

Why in News?

- The World Bank has released its Global Economic Prospects (GEP) June 2020 report.

Highlights of the report

- The Indian economy is expected to **contract by 3.2% in this fiscal year** as a result of the COVID-19 pandemic and its associated restrictions.
- The world economy, as a whole, is set to witness its **deepest recession since World War II**, with a forecasted contraction of 5.2% this year.
- Countries most reliant on global trade, tourism, external financing and commodity exports are likely to be hit the hardest.

Growth rebound

- Global growth is set to rebound at 4.2% in 2021, with Emerging market and developing economies (EMDEs) growing at 4.6% and advanced economies growing at 3.9%. This, however, is the baseline forecast and assumes that pandemic-induced domestic restrictions will be lifted by mid-year in advanced economies and a bit later in EMDEs.
- India is forecast to see some recovery next year and grow at 3.1%.

Other reports or index published by World Bank

- Ease of Doing Business report
- Global Financial Development report
- World Development report
- Global Mobility report
- Global Investment Competitiveness report
- Remittance report
- Logistic Performance index
- Ease of living index

- Human capital index
- Atlas of SDG's
- Regulatory indicators for sustainable Energy (RISE)
- Global Economic Prospects report

2) World Economic Outlook

What is it?

- The World Economic Outlook (WEO) is an **International Monetary Fund's** (IMF) report that provides analysis and forecasts of economic developments and policies in its member countries.
- The report encapsulates the state of the global economy and highlights risks and uncertainty that threaten growth.

Why in News?

- The IMF has released its April 2020 World Economic Outlook forecast.

Highlights

- The forecast projected a sharp contraction of 4.5% for the Indian economy in 2020, the lowest ever for India since 1961. The IMF does not have the data beyond that year.
- India is expected to bounce back in 2021 with a robust 6% growth rate.
- It projected the global growth at -4.9% in 2020. In 2021, global growth is projected at 5.4%.

About IMF

- The International Monetary Fund was conceived in 1944 at the **United Nations Bretton Woods Conference** in New Hampshire, United States.
- The IMF and the World Bank are called **Bretton Woods twins**.
- The IMF is a permanent observer at the UN.
- It is an organization of 189 countries. **India is a founder member** of the IMF.

The mandate of the IMF as follows:

- To promote international monetary cooperation;
- To facilitate the expansion and balanced growth of international trade;
- To promote exchange stability;
- To assist member countries in correcting maladjustments in their balance of payments without resorting to measures

- destructive of national or international prosperity;
- To assist in the elimination of foreign exchange restrictions which hamper the growth of world trade.

Other reports or index by IMF

- Global Financial Stability report
- Fiscal Monitor report

3) Global Education Monitoring Report

What is it?

- The Global Education Monitoring (GEM) Report monitors progress towards the education targets in the 2030 Sustainable Development Agenda.
- It is **released by the United Nations Educational, Scientific and Cultural Organization (UNESCO)**.

Why in News?

- UNESCO has released its Global Education Monitoring Report 2020.

Highlights of the report

- The COVID-19 pandemic has **exacerbated inequalities in education systems** across the world. Efforts to maintain learning continuity during the pandemic may have actually worsened exclusion trends.
- Education systems responded with distance learning solutions, all of which offered less or more **imperfect substitutes for classroom instruction**.
- Even as governments increasingly rely on technology, the **digital divide** lays bare the limitations of this approach.
- School closures also **interrupted support mechanisms** from which many **disadvantaged learners** benefit. Resources for blind and deaf students may not be available outside schools, while children with learning disabilities or those who are on the autism spectrum may struggle with independent work in front of a computer or the disruption of daily school routines.
- For poor students who depend on school for free meals or even free sanitary napkins, closures have been a major blow.
- Cancellation of examinations in many countries, including India, may result in scoring dependent on teachers' judgements of students instead, which

could be **affected by stereotypes** of certain types of students.

- Higher drop-out rates** are also a concern; during an earlier Ebola epidemic in Africa, many older girls never returned to school once the crisis was over.

About UNESCO

- UNESCO was constituted as a **specialized agency** of the United Nations that was outlined in a constitution signed November 16, 1945. The constitution entered into force in 1946.
- Its purpose is to contribute to peace and security by promoting international collaboration through education, science, culture and communication.
- UNESCO has 193 member countries (including **India**) and it pursues its objectives through **five major programs**: education, natural sciences, social and human sciences, culture, and communication and information.
- The agency's permanent headquarters are in Paris, France.

Other reports or index by UNESCO

- The Education for All Development Index
- Gender Parity Index

4) Money Laundering and the Illegal Wildlife Trade Report

About Financial Action Task Force (FATF):

- It is an **intergovernmental organization** that designs and promotes policies and standards to combat financial crime.
- Recommendations of created by the FATF target
 - Money laundering
 - Terrorist financing
 - Other threats to the global financial system
- The FATF was created in 1989 by the **G7 countries**, and is headquartered in Paris.
- The FATF currently comprises 37 member jurisdictions (including **India**) and 2 regional organisations (European Commission and the Gulf Cooperation Council).

Grey list FATF:

- Member countries that have deficiencies in their anti-money laundering and counter terrorist financing (AML/CTF) regimes but

- they **commit** to an action plan to address these loopholes.
- Currently, there are 18 countries on the grey list, including Mauritius and Pakistan.

Black list FATF:

- Member countries that have deficiencies in their anti-money laundering and counter terrorist financing (AML/CTF) regimes and **do not end up doing enough**.
- As of now there are only two countries in the blacklist — **Iran and North Korea**.
- While greylist includes countries which are considered as safe havens for supporting terror funding and money laundering, blacklisting will mean **severe strictures on the countries banks and credit rating**, as well as **access to loans and foreign investments**.

Why in News?

- FATF has released its first global report on the illegal wildlife trade titled "**Money Laundering and the Illegal Wildlife Trade**".

Highlights of the report

- The FATF has described illegal wildlife trade as a "global threat", which also has links with other organised crimes like modern slavery, drug trafficking and arms trade.
- The study has highlighted the growing role of online marketplaces and mobile and social media-based payments to facilitate movement of proceeds warranting a coordinated response from government bodies, the private sector and the civil society.

5) World Drug Report 2020

What is it?

- The World Drug Report is a **United Nations Office on Drugs and Crime's (UNODC)** annual publication that analyzes market trends, compiling detailed statistics on drug markets.

Why in News?

- UNODC has released its World Drug Report 2020.

Highlights of the report

- The report highlighted a wide range of possible consequences of the COVID-19 pandemic on illegal drug production, supply and consumption.

- It expressed concern over the adverse impact of the economic hardship caused by the pandemic. This could lead to an **increase in the number of people resorting to illicit activities linked to drugs to make a living**.
- As experienced during the 2008 economic crisis, it could result in reductions in drug-related budgets of the governments; overall increase in drug use, with a shift towards cheaper and more harmful drugs.

About UNODC

- Established in 1997, UNODC is a global leader in the fight against illicit drugs and international crime.
- The work of the UNODC is guided by a broad range of **international legally binding instruments**, such as the three drug control conventions, the UN Convention against Transnational Organized Crime and its protocols, the UN Convention against Corruption, the UN standards and norms on crime prevention and criminal justice and nineteen universal legal instruments against terrorism.
- It is headquartered in Vienna.

Other reports or index by UNODC

- Global report on Trafficking in Persons
- World Wildlife Crime report

6) Rule of Law Index

About the Index

- The Rule of Law Index is designed and compiled by the **World Justice Project**.
- The index is a quantitative assessment tool which offers a detailed and comprehensive picture of the extent to which countries adhere to the rule of law in practice.

Why in News?

The World Justice Project has released its latest Rule of Law Index.

Rule of Law Index 2020

- The Rule of Law Index 2020 presents a portrait of the rule of law in 128 countries and jurisdictions by providing scores and rankings based on **eight factors**:
- Constraints on Government Powers, Absence of Corruption, Open Government, Fundamental Rights, Order and Security, Regulatory Enforcement, Civil Justice, and Criminal Justice.

- Scores range from 0 to 1, with 1 indicating the strongest adherence to the rule of law.
- With a score of 0.51, **India secured 69th position.**

World Justice Project

- The World Justice Project is an independent, multidisciplinary not for profit organization working to advance the rule of law worldwide.

Other reports or index by World justice project

- Global Insights on Access to Justice
- Measuring the Justice Gap

7) State Food Safety Index

About the Index

- The State Food Safety Index has been developed by the **Food Safety and Standards Authority of India (FSSAI)** to measure the performance of states on various parameters of Food Safety.
- This index is based on performance of State/ UT on **five significant parameters**, namely, Human Resources and Institutional Data, Compliance, Food Testing – Infrastructure and Surveillance, Training & Capacity Building and Consumer Empowerment.
- The Index is a dynamic quantitative and qualitative benchmarking model that provides an objective framework for evaluating food safety across all States/UTs.

Why in News?

- FSSAI has released its State Food Safety Index 2019-20.

Highlights of the Index

- Gujarat, Tamil Nadu and Maharashtra have topped in the list of larger states on the index.
- Among the smaller states, Goa came first followed by Manipur and Meghalaya.
- Among Union Territories, Chandigarh, Delhi and Andaman Islands secured top ranks.

About FSSAI

- It is an **autonomous statutory body** established under the Food Safety and Standards Act, 2006.
- The **Ministry of Health & Family Welfare** is the administrative Ministry of FSSAI.

- FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety.

8) State of World Population 2020 report

About the Report

- The State of World Population is an annual report published by the **United Nations Population Fund (UNFPA)**.
- Each edition covers and analyses developments and trends in world population and demographics, as well as shedding a light on specific regions, countries and population groups and the unique challenges they face.

Why in News?

- UNFPA has released its State of World Population 2020 report.

Highlights of the Report

- India accounts for 45.8 million of the world's 142.6 million "missing females" over the past 50 years. India along with China (which account for 72.3 million) form the majority of such women globally.
- The number of "missing women" has more than doubled over the past 50 years - from 61 million in 1970 to a cumulative 142.6 million in 2020.
- "Missing females" are women missing from the population at given dates due to the **cumulative effect of postnatal and prenatal sex selection in the past**.
- India has the **highest rate of excess female deaths**, 13.5 per 1,000 female births, which suggests that an estimated one in nine deaths of females below the age of 5 may be attributed to **postnatal sex selection**.
- Successful education-related interventions include the provision of cash transfers conditional on school attendance; or support to cover the costs of school fees, books, uniforms and supplies. The report took note of successful cash-transfer initiatives such as '**Apni Beti Apna Dhan**' in India.
- *The Apni Beti Apna Dhan (My daughter, my wealth) programme is a state-run scheme to end child marriage in Haryana. It promises Rs 25,000 to girls on the condition that they abide by the legal age of marriage*

- *in India and stay unmarried till 18 years of age.*
- Preference for a male child manifested in sex selection has led to dramatic, long-term shifts in the proportions of women and men in the populations of some countries. This demographic imbalance will have an inevitable impact on marriage systems. In countries where marriage is nearly universal, many men may need to delay or forego marriage because they will be unable to find a spouse.
- This so-called "**marriage squeeze**", where prospective grooms outnumber prospective brides, has already been observed in some countries and affects mostly young men from lower economic strata. At the same time, the marriage squeeze could result in more **child marriages**.

About UNFPA

- UNFPA is the United Nations sexual and reproductive health agency.
- Its mission is to deliver a world where every pregnancy is wanted, every childbirth is safe and every young person's potential is fulfilled.

9) World Investment Report

About the Report

- The World Investment Report has been published annually since 1991 by the **United Nations Conference on Trade and Development (UNCTAD)**.
- The Report focuses on trends in foreign direct investment (FDI) worldwide, at the regional and country levels and emerging measures to improve its contribution to development.

Why in News?

- UNCTAD has released its World Investment Report 2020.

Highlights of the Report

- India received USD 51 billion in foreign investment in 2019; an increase from the 42 billion dollars of FDI received in 2018 and was the world's 9th largest recipient of FDI in 2019.
- India is the **largest South Asian recipient of FDI** in 2019.
- The report projects a lower but positive economic growth in India in the post-

- COVID-19 pandemic period and India's large market will continue to attract market-seeking investments to the country.
- The report forecast that global FDI flows will decrease by up to 40 per cent in 2020, from their 2019 value of USD 1.54 trillion. This would be for the first time since 2005 that global FDI falls below the USD 1 trillion mark.

UNCTAD

- Established in 1964 as a permanent intergovernmental body, UNCTAD is the principal organ of the United Nations General Assembly dealing with trade, investment and development issues.
- It is also the United Nations focal point for the least developed countries.

Other reports or index by UNCTAD

- Trade and Development report
- The Least Developed Countries report
- Information and Economy report
- Technology and Innovation report
- Commodities and Development report

10) Infant Mortality rate

What is it?

- The Infant Mortality Rate (IMR) is defined as the number of **deaths** of children under **one year of age**, expressed per 1,000 live births.
- IMR is widely accepted as a crude indicator of the overall health scenario of a country or region.

Why in the news?

- The **Office of the Registrar General of India** has released its **Sample Registration System** bulletin.

Highlights of the bulletin

- Infant Mortality Rate in India has fallen from **50 to 32 per 1,000 live births** over the past decade, but the wide variation in numbers across the country offsets the achievement.
- The bulletin also shows that the numbers vary dramatically among states and between rural and urban areas.

Variation among states

- The bulletin has divided states and Union Territories into three categories—**bigger, smaller and Union Territories**. States and Union Territories with a population of

- more than 10 million as per Census 2011 are in the “bigger” category.
- While three “bigger” states, Delhi, Maharashtra and Tamil Nadu—have IMR within 20, in four states, IMR has crossed 40- Assam, Chhattisgarh, Madhya Pradesh and Odisha.
- The variation is wide even among smaller states—37 in Arunachal Pradesh and four in Nagaland. Similarly among Union Territories, IMR varies between 16 and nine in Andaman and Nicobar Islands and Daman and Diu.

Rural Vs Urban

- IMR is **higher in rural** areas than in urban areas.

- In rural India, one in every 28 infants dies within the first year of their life, while the figure is one in 43 for urban areas.
- Delhi, Tripura and Puducherry are the only places that have higher IMR in urban areas than in rural areas.

Registrar General of India

- The office of Registrar General and Census Commissioner of India was founded in 1961 by the **Ministry of Home Affairs** for arranging, conducting and analysing the results of the **demographic surveys of India, including census and linguistic survey**.

Polity

1) Anti-Defection Law

What is the anti-defection?

- It is disqualification when a member of parliament or legislature chooses to join another party after being elected as some party.
- In 1985, the **52nd amendment act** was passed by the Parliament to achieve this by introducing **Tenth Schedule in the Constitution**.
- The law applies to **both Parliament and state assemblies**.

Disqualification is done when:

- Member voluntarily gives up party membership
- If he abstains from the direction given by the party's whip
- If an independent candidate joins any political party after their election to legislature
- If a nominated member joins a party after 6 months of his/her nomination.

Exception:

- If a **presiding officer**, after being elected, gives up party for impartiality then he is not disqualified. He can re-join the party after getting down from the post.
- The original act introduced in 1985 protected legislators from disqualification in cases where there was a **split** (with 1/3rd of members splitting) or **merger** (with 2/3rds of members merging) of a legislature party with another political party.
- The 2003 amendment to the law **deleted the one-third split provision** which offered protection to defectors.

Deciding Authority:

- The **Presiding officer** will be the final authority to decide the disqualification on the ground of anti-defection. The decision **can be challenged in court**.
- And if the question which has arisen is as to whether the Chairman or the Speaker of a House has become subject to such disqualification, the question shall be referred for the decision of such member

of the House as the House may elect on this behalf and his decision shall be final.

- The law **does not specify a time period** for the Presiding Officer to decide on a disqualification plea.

Recommendations:

- The **170th Law Commission report** underscored the importance of intra-party democracy by arguing that a political party cannot be a dictatorship internally and democratic in its functioning outside. The parties should listen to the opinions of the members and have discussions giving the freedom of speech and expression and promote inner-party democracy.
- Justice Verma** in *Kihoto Hollohan judgment* said that tenure of the Speaker is dependent on the continuous support of the majority in the House and therefore, he does not satisfy the requirement of such independent adjudicatory authority. So there is a need for an **independent authority** to deal with the cases of defection.
- The Election Commission recommended that decisions under the Tenth Schedule should be made by the **President/Governor on the binding advice of the Election Commission**.

Why in News?

- The Supreme Court in a case relating to disqualification in Manipur Assembly ruled that the Speaker should decide Tenth Schedule disqualifications within a "reasonable period". What was 'reasonable' would depend on the facts of each case.
- However, the court held that, unless there were "exceptional circumstances", disqualification petitions under the Tenth Schedule should be decided by the Speaker **within three months**.
- The apex court also called for an **independent mechanism** including a Permanent Tribunal to decide the disputes under 10th Schedule.

International Relations

1) India-china border issues

Background

- The disputed boundary between India and China, also known as the **Line of Actual Control (LAC)**, is divided into **three sectors**: viz. Western (Ladakh, Kashmir), middle (Uttarakhand, Himachal) and eastern (Sikkim, Arunachal).
- The countries disagree on the exact location of the LAC in various areas, so much so that India claims that the LAC is

3,488 km long while the Chinese believe it to be around 2,000 km long.

Johnson Line

- The boundary dispute in the Western Sector pertains to the Johnson Line proposed by the British in the 1860s which put **Aksai Chin** in the then princely state of Jammu and Kashmir.
- Independent India used the Johnson Line and claimed Aksai Chin as its own. However, China stated that it had never acceded to the Johnson Line and refused to cede Aksai Chin to India.



Middle Sector

- In the Middle Sector, the dispute is a minor one. It is the only one where India and China have exchanged maps on which they broadly agree.

McMahon Line

- The disputed boundary in the Eastern Sector of the India-China border is over the McMahon Line.
- Representatives of China, India and Tibet in **1913-14 met in Shimla**, where an agreement was proposed to settle the boundary between Tibet and India, and Tibet and China.

- Though the Chinese representatives at the meeting initialled the agreement, they subsequently refused to accept it claiming that Tibet is not a sovereign nation and thus the McMahon Line has no legal standing.

- At the heart of boundary dispute is the issue of Arunachal Pradesh, which China describes as '**Southern Tibet**'.

How is the LAC different from the Line of Control (LoC) with Pakistan?

- The LoC emerged from the 1948 ceasefire line negotiated by the UN after the Kashmir War.

- It was designated as the LoC in 1972, following the **Shimla Agreement** between the two countries.
- It is delineated on a map signed by Director General of Military Operations (DGMOs) of both armies and has the international sanctity of a legal agreement.
- The LAC, in contrast, is only a concept – it is not agreed upon by the two countries, neither delineated on a map nor demarcated on the ground.

Mechanism to prevent border flare-ups

- The two countries engaged in **Confidence Building Measures (CBMs)** on the border with bilateral agreements signed in 1993, 1996, 2005, 2012 and 2013.
- During Prime Minister Atal Bihari Vajpayee's visit to China in 2003, the two sides agreed on the appointment of **special representatives for consultations** aimed at arriving at a framework for a boundary settlement that would provide the basis for the delineation and demarcation of the border.
- In October 2013, the two sides signed the **Boundary Defence Cooperation Agreement** to prevent any flare up along the un-demarcated border. This encompasses both military level and diplomat level dialogue mechanism.

Recent clash

- Indian and Chinese armies rushed in additional troops in areas around Pangong Tso lake in eastern Ladakh, after recent clashes between the soldiers of both sides.

- The LAC mostly passes on the land, but Pangong Tso is a unique case where it passes through the water as well. The points in the water at which the Indian claim ends and Chinese claim begins are not agreed upon mutually.
- Most of the clashes between the two armies occur in the disputed portion of the lake.

Why in News?

- Defence Minister Rajnath Singh said that the military level talks between India and China to resolve the border dispute had been very positive. Both sides agreed that they will continue the talks to resolve the issue in a peaceful way.

2) Senkaku islands dispute

Background

- The **Diaoyu archipelago** (known as the Senkakus in Japanese) is an uninhabited chain of islands in the **East China Sea** claimed by **China, Taiwan and Japan**.
- In recent years, the increased presence of Japanese and Chinese vessels in nearby waters has heightened concerns about possible clashes between the two countries.
- The archipelago has been controlled by **Japan** since 1895.



Why in News?

- A local council in southern Japan voted to rename the area covering the Senkaku Islands from “Tonoshiro” to “Tonoshiro Senkaku”.
- China denounced the move as illegal and a serious provocation to China’s territorial sovereignty.
- Taiwan, which claims the islands are part of its territory, also protested the move.

3) Visa suspension

H-1B visas

- In order to fill a vacuum of highly-skilled low-cost employees in IT and other related domains, the **US administration** issues a certain number of visas each year which allows **companies from outside the US to send employees to work on client sites**.
- Of these work visas, the H-1B remains the most popular among Indian IT companies. The US government has a cap of 85,000 total H-1B visas for each year.
- Of this, 65,000 H-1B visas are issued to **highly skilled foreign workers**, while the rest 20,000 can be additionally allotted to **highly skilled foreign workers who have a higher education or masters degree from an American university**.
- H-1B visas are generally approved for a period of **three years** for a person, but many visa holders change employers to extend their US stay.

Why in News?

- The US administration has recently said it was extending the 60-day ban on immigration and non-immigrant worker visas till the end of 2020.
- Popular work visas including the much-coveted H-1B and **H-2B** (non-agricultural workers), and certain categories of **H4 visas** (H-1B dependents), **J visas, and L visas** (intra-company transfers) will also remain suspended until December 31.
- The move, US President Donald Trump said, was to protect domestic workers who had been impacted due to a contraction in the economy in the wake of the Covid-19 pandemic.

How does it impact Indian IT companies?

- Indian IT companies are **amongst the biggest beneficiaries of the US H-1B visa regime**, and have since the 1990s cornered a lion’s share of the total number of visas issued each year.
- Apart from the suspension of these work visas, the executive order signed by the U.S. administration has also made sweeping changes to the H-1B work visa norms, which will **no longer be decided by the currently prevalent lottery system**. The new norms will now **favour highly-skilled workers who are paid the highest wages** by their respective companies.
- This could result in a significant impact on margins and worker wages of Indian IT companies which send thousands of low-cost employees to work on client sites in the US.

4) India and Nepal Border disputes



Background

- India and Nepal share a 1,800km (1,118-mile) open border.

- Nepal has long claimed the areas of **Limpiyadhura, Kalapani and Lipulekh** under the **1816 Sugauli treaty** with the British East India Company, although these areas have remained under the control of Indian troops since India fought a war with China in 1962.
- Under the Treaty of Sugauli, **Kali river** was agreed as the demarcation line for the boundary between India and Nepal.
- However, what is meant by "Kali River" in the upper reaches is unclear, which created the scope for different interpretations by the two neighbours.
- The latest border dispute between the countries began over India's inauguration of a **Himalayan link road** cutting through the Lipulekh Himalayan pass, which will serve as the shortest route between capital New Delhi and Kailash-Mansarovar, a revered Hindu pilgrimage site in the Tibetan plateau.

Why in News?

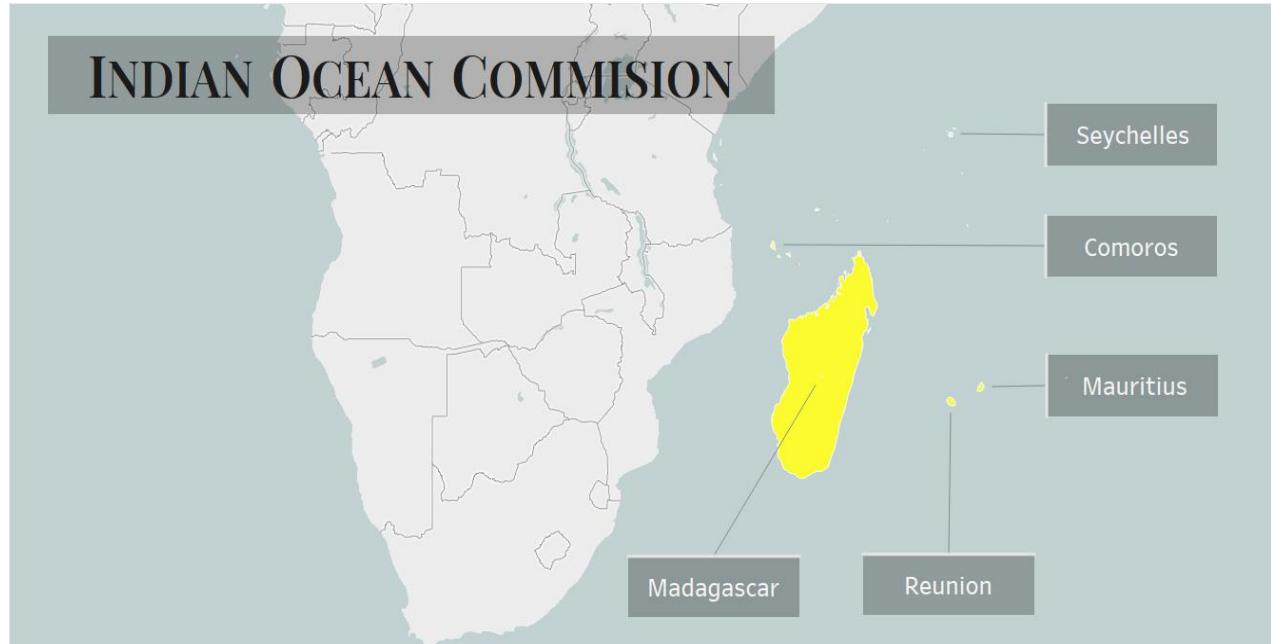
- Nepal's Parliament has cleared a Constitution Amendment Bill that endorses the country's new map that

- includes the areas of Lipulekh, Kalapani, and Limpiyadhura as part of its territory.
- India, which controls the region has rejected the map, saying it is not based on historical facts or evidence.

5) Initiatives towards Maritime Domain Awareness

About IOC

- The Indian Ocean Commission (IOC) is an intergovernmental body created in 1984 that coordinates maritime governance in the south-western Indian Ocean.
- It consists of **five Member States**: The Union of the Comoros, France Reunion Island, Madagascar, Mauritius and the Seychelles.
- The IOC's mission is to unite Member States' forces and pool their resources, raise awareness of the special challenges that developing islands face and promote Indianoceania as a region of unique human, cultural and natural diversity.
- Recently, India has been accepted as an **observer** of the Indian Ocean Commission.



About IFC-IOR

- The Information Fusion Centre – Indian Ocean Region (IFC-IOR) was inaugurated in 2018 within the premises of the Navy's **Information Management and Analysis Centre (IMAC)** in Gurugram.
- IFC-IOR was established with the vision of **strengthening maritime security in the**

- region and beyond**, by building a common coherent maritime situation picture and acting as a maritime information hub for the region.
- Establishment of IFC-IOR ensures that the entire region is benefitted by mutual collaboration and exchange of information

- and understanding the concerns and threats which are prevalent in the region.
- The IMAC is the single point centre linking all the coastal radar chains to generate a seamless real-time picture of nearly 7,500-km coastline and of some neighbouring countries. It helps in tracking maritime movements in the region.*

Why in News?

- After joining the Indian Ocean Commission as Observer, India is looking to post Navy Liaison Officers at the **Regional Maritime Information Fusion Centre (RMIFC)** in Madagascar and also at the **European maritime surveillance initiative in the Strait of Hormuz (EMASOH)** for improved Maritime Domain Awareness (MDA).
- This will be in the overall realm of improving linkages of the Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR) with other IFCs and become the **repository for all maritime data in the IOR**.

RMFIC & EMASOH

- The RMFIC functions **under the aegis of the IOC**.
- EMASOH is supported by eight countries which include Germany, Belgium, Denmark, Greece, Italy, the Netherlands, Portugal, and France.
- The aim is to **monitor maritime activity and guarantee freedom of navigation** in the Persian Gulf and the Strait of Hormuz.
- On February 5, the initiative was declared operational by the French Ministry of Armed Forces.

Related agreements

- Of late, India has signed a series of **white shipping agreements, Logistics Support Agreements (LSA) and maritime cooperation agreements** with several countries.
- White shipping agreements refer to exchange of relevant advance information on the identity and movement of commercial non-military merchant vessels.*

6) GAVI Alliance

About GAVI Alliance

- The GAVI Alliance (formerly the Global Alliance for Vaccines and Immunisation) is

a global health partnership of public and private sector organizations established in 2000 and dedicated towards **creating equal access to new and underused vaccines for children living in the world's poorest countries**.

- GAVI's strategy supports its mission to save children's lives and protect people's health by increasing access to immunisation in poor countries.
- Its partners provide funding for vaccines and intellectual resources for care advancement. They contribute, also, to strengthening the capacity of the health system to deliver immunisation and other health services in a sustainable manner.

Why in News?

- Prime Minister Narendra Modi participated in the **virtual Global Vaccine Summit** hosted by UK Prime Minister Boris Johnson and **pledged \$15 million to Gavi alliance**.

7) India-Australia virtual bilateral summit

What's in the news?

- Prime Minister Modi and his Australian counterpart PM Scott Morrison took part in the first-ever virtual bilateral summit between the leaders of the two countries.
- During the summit India and Australia concluded several key agreements including a **Mutual Logistics Support Agreement (MLSA)**.

MLSA

- Under MLSA, the two countries' militaries can use each other's bases to carry out repair and replenishment of supplies besides allowing for scaling up of overall defence ties. India already has similar agreements with the **US, France and Singapore**.

Other important agreements

- The two countries also agreed to increase the frequency of meetings between the two Prime Ministers, and took the "**2+2**" **format** of bilateral meetings to the level of Foreign and Defence Ministers, who will meet to discuss strategic issues at least every two years.
- Other agreements announced included a **framework arrangement on cyber technology**, an **MoU on cooperation in**

- the field of mining and processing of critical and strategic minerals.** India plans to import strategic minerals from Australia while diversifying supplies beyond China.
- The two sides also decided to recommence suspended talks over the **India-Australia Comprehensive Economic Cooperation Agreement (CECA)**, suspended since 2015 after nine inconclusive rounds of negotiations.

Comprehensive Strategic Partnership

- During the summit, the two countries raised their relationship to a **“Comprehensive Strategic Partnership” (CSP)**.

- The relationship between the two nations was upgraded to a ‘Strategic Partnership’ level in 2009. Since then, both countries have expanded their cooperation in a range of key areas.
- India has signed CSPs with the United Kingdom, Indonesia, Vietnam, and the United Arab Emirates thus far, while Australia has CSPs with China, Indonesia and Singapore.
- The CSP would raise the level of trust required to improve the trade and investment flows between India and Australia.

Art and Culture

1) Mappila Revolt

Who are Mappilas?

- The Mappilas were the **Muslim tenants inhabiting the Malabar region where most of the landlords were Hindus.**
- The Mappilas had expressed their resentment against the oppression of the landlords during the 19th Century itself.
- Their grievances centred on lack of security of tenure, high rents, renewal fees and other oppressive exactions.

Mappila Revolt or Malabar Rebellion 1921

- Mappilas or Moplahs rose in revolt against their landlords in 1921.
- The Mappila tenants were particularly encouraged by the demand of the local Congress body for a government legislation regulating tenant-landlord relations.
- Soon, the Mappila movement was **merged with the ongoing Khilafat agitation.**
- The leaders of the Khilafat-Non-Cooperation Movement like **Gandhi, Shaukat Ali and Maulana Azad** addressed Mappila meetings.
- After the arrest of national leaders, the leadership passed into the hands of local Mappila leaders.

Course of the rebellion

- Things took a turn for the worse in August 1921 when the arrest of a respected priest leader, **Ali Musalier**, sparked off **large-scale riots**.
- Initially, the symbols of British authority- courts, police stations, treasuries and offices- and unpopular landlords (*jenmies* who were mostly Hindus) were the targets.
- But once the British declared martial law and repression began in earnest, the character of the rebellion underwent a definite change.
- Many Hindus were seen by the Mappilas to be helping the authorities.
- What began as an anti-government and anti-landlord affair acquired **communal overtones**.
- Previously, the outbreak of violence resulted in **divergence of the Khilafat-Non-Cooperation Movement and the Mappila rebellion.**

- The communalisation of the rebellion **completed the isolation** of the Mappilas from the Khilafat-Non-Cooperation Movement.
- By December 1921, all resistance had come to a stop.

Why in News?

- With the rebellion turning 100 next year, four movies in Malayalam have been announced with the rebellion as the theme.
- Three of them will narrate the story of freedom fighter **Variyamkunnath Kunhahamed Haji**, who was shot dead by the British police.

About Variyamkunnath Kunhahamed Haji

- Chakkiparamban Variyankunnathu Kunhahamed Haji (1877- 1922) was an activist of Indian independence movement who led the Malabar Rebellion against the British.
- He **ran a parallel government**, in open defiance of British rulers, for more than six months in most parts of the then **Eranadu** and **Valluvanadu** taluks.
- Subsequently he was executed by British.
- Ali Musalier was his mentor.

2) Bal Gangadhar Tilak

About

- Bal Gangadhar Tilak was considered the **first popular leader of the freedom movement**.
- He was born on 23 July 1856 in Ratnagiri, **Maharashtra**.
- A nationalist to the core, he was a great scholar, mathematician and a philosopher.
- He was conferred upon the title, "**Lokmanya**" (**beloved leader**) by his followers.
- Mahatma Gandhi** called him "**The maker of modern India**" while **Jawaharlal Nehru** described Tilak as "**The father of the Indian revolution**".

Works and contributions to freedom movement

- Tilak founded the **Deccan Education Society (1884)**, aimed at educating the masses through the **English language**,

- which he considered as a **conveyor of liberal and democratic ideals**.
- Tilak popularised Maratha icon Shivaji and organised the **first Shivaji festival in 1886**.
- In **1883** Tilak organised “**Ganesh Utsav**” that mobilized people from different castes and communities to spread nationalism.
- Despite being perennially against early marriage, he **opposed the 1891 Age of Consent Bill** which proposed to raise the minimum age for a girl to get married from 10 to 12 years. Tilak saw the bill as interfering with Hinduism.

Political career

- Tilak joined the Indian National Congress in **1890** and opposed the moderate nationalists within the party.
- Following the **partition of Bengal in 1905**, Tilak supported the **Swadeshi movement** and said that once British goods were boycotted, there will be a gap which will be filled by the Indian goods.
- Tilak quit the Congress in the **1907 Surat Session** along with other extremist nationalists due to his differences with moderates.
- He founded the **Indian Home Rule League in 1914**, setting the stage for the freedom movement.
- He gave the slogan of “**Swaraj is my birthright and I will have it**”.
- Tilak also concluded the “**Lucknow Pact**” with **Mohammed Ali Jinnah** which helped create a “Hindu-Muslim” unity during the Khilafat movement (1919) and the Non-Cooperation Movement (1920).
- Tilak died of pneumonia on 1 August, 1920 in Mumbai.

Books and Magazines

- Tilak owned and edited two weekly newspapers — **Kesari (Marathi)** and **The Mahratta (English)**.
- Tilak’s editorial in Kesari titled “**The misfortune of the country**” in 1908 slammed the brutal bureaucracy under the British rule, leading to his imprisonment.
- He was sent to jail in Mandalay, Myanmar, from 1908 to 1914 where he wrote an original commentary on the Bhagavadgita, **Bhagavadgita-Rahasya** (Secret of the Bhagavadgita) or **Gita Rahasya** in **Marathi**.

- In 1893, he published **The Orion; or, Researches into the Antiquity of the Vedas**, and, in 1903, **The Arctic Home in the Vedas**.

Why in News?

- Cultural and Literary programmes have been planned in Maharashtra to commemorate Tilak’s death centenary on 1 August, 2020.

3) Kanwar Yatra

About

- Kanwar Yatra is a massive **annual pilgrimage** in India dedicated to the Hindu deity, **Lord Shiva**.
- Kanwar refers to a bamboo stick with pots tied to its two ends, with the devotees of Lord Shiva known as the ‘**Kanwariyas**’ who carry the Kanwar on their shoulders.



- It involves the fetching of the holy water, traditionally called ‘**Ganga Jal**’ from the river Ganga or its tributaries at various Hindu pilgrimage sites, such as **Haridwar**, **Gaumukh** and **Gangotri** in Uttarakhand, and **Sultanganj** in Bihar.
- It is carried across hundreds of miles to their respective hometowns.

Why in News?

- The States of Uttar Pradesh, Uttarakhand and Haryana have deferred this year’s Kanwar yatra due to the COVID-19 pandemic.

4) Pashupatinath Temple complex

About the temple

- Pashupatinath Temple is the largest temple complex in **Nepal** and stretches on both sides of the **Bagmati River**.
- Dedicated to **Lord Shiva**, Pashupatinath is one of the four most important religious sites in Asia for devotees of Shiva.
- The temple was built in the **5th century AD** and later renovated by **Malla kings**.
- The main temple is built in a **pagoda styled** inside a fortified courtyard.
- Pagoda is a towerlike, multistory, solid or hollow structure made of stone, brick, or wood.*
- The temple is also listed under the **UNESCO World Heritage site**.



Why in News?

- India has pledged to construct a Rs 2.33 crore sanitation facility at the iconic Pashupatinath Temple complex to improve the infrastructure in the holy shrine for the pilgrims.
- The project would be constructed under the **Nepal-Bharat Maitri: Development Partnership** as a high impact community development scheme by India.

UNESCO World Heritage site

- A World Heritage Site is a landmark or area, selected by the United Nations Educational, Scientific and Cultural Organization (UNESCO) for having cultural, historical, scientific or other form of significance, which is legally protected by international treaties.

UNESCO's World Heritage Convention, 1972

- The Convention Concerning the Protection of the World Cultural and Natural Heritage is an international agreement that was adopted by the General Conference of UNESCO in 1972.

- It is based on the premise that certain places on Earth are of **outstanding universal value** and should therefore form part of the common heritage of humankind.
- It basically defines the kind of **natural or cultural sites** which can be considered for inscription on the World Heritage List.
- The Convention sets out the duties of **State Parties** in **identifying potential sites and their role in protecting and preserving them**.
- By signing the Convention, each country pledges to conserve not only the World Heritage sites situated on its territory, but also to **protect its national heritage**.
- It explains how the **World Heritage Fund** is to be used and managed and under what conditions **international financial assistance** may be provided.

UNESCO Cultural sites in India (30)

- Agra Fort
- Ajanta Caves
- Archaeological Site of Nalanda Mahavihara at Nalanda, Bihar
- Buddhist Monuments at Sanchi
- Champaner-Pavagadh Archaeological Park
- Chhatrapati Shivaji Terminus (formerly Victoria Terminus)
- Churches and Convents of Goa
- Elephanta Caves
- Ellora Caves
- Fatehpur Sikri
- Great Living Chola Temples
- Group of Monuments at Hampi
- Group of Monuments at Mahabalipuram
- Group of Monuments at Pattadakal
- Hill Forts of Rajasthan
- Historic City of Ahmedabad
- Humayun's Tomb, Delhi
- Jaipur City, Rajasthan
- Khajuraho Group of Monuments
- Mahabodhi Temple Complex at Bodh Gaya
- Mountain Railways of India
- Qutb Minar and its Monuments, Delhi
- Rani-ki-Vav (the Queen's Stepwell) at Patan, Gujarat
- Red Fort Complex
- Rock Shelters of Bhimbetka
- Sun Temple, Konârk
- Taj Mahal

- The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement
- The Jantar Mantar, Jaipur
- Victorian Gothic and Art Deco Ensembles of Mumbai

UNESCO Natural sites in India (7)

- Great Himalayan National Park Conservation Area
- Kaziranga National Park
- Keoladeo National Park
- Manas Wildlife Sanctuary
- Nanda Devi and Valley of Flowers National Parks
- Sundarbans National Park
- Western Ghats

Mixed site (1)

- Khangchendzonga National Park

5) Talamaddale

About Talamaddale

- The traditional art of 'talamaddale', an art form of **coastal Karnataka**, is a **variant of Yakshagana theatre**.
- The word Talamaddale is derived from the word '**tala**' (**Cymbal**) and **Maddale** (**the drum**).
- While the Yakshagana has speech, dance and costume, talamaddale has **only the spoken word** with music being common between them.
- Hence, it is an art form minus dance, costumes and stage conventions.

Why in News?

- The Sanathana Yaksha Ranga Cultural Centre and Northern California Havyaka Group hosted a virtual talamaddale episode streamed live over the internet.

Yakshagana

- Yaksha-gana literally means the **song (gana) of a Yaksha**.
- Yakshas were an exotic tribe mentioned in the Sanskrit literature of ancient India.



- The theater form was originally called **Bayalata** (open place play) or simply Ata (play).
- Yakshagana is a **traditional dance drama** popular in the coastal districts and adjacent areas of the state of **Karnataka**.
- Yakshagana combines dance, music, spoken word, elaborate costumes and makeup, and stage technique with a distinct style and form.
- It is generally regarded as a form of **folk theater**, but possesses strong classical connections.
- Yakshagana arose from the **Vaishnava bhakti movement** as a means of entertaining and educating the common people, and was well-established by the sixteenth century.
- A performance usually depicts a story from the **Hindu epics** of Ramayana and Mahabharata and the mythology of the puranas.

6) Jagannath Temple, Puri

About the temple

- Sri Jagannath Temple is one of the most revered and sacred pilgrimage sites in India.
- Its main deity is **Lord Jagannath**, who is said to be an **incarnation of Lord Vishnu**.
- The Jagannath Puri Rath Yatra is considered as India's **biggest chariot festival**.



- The majestic temple is said to have been built by king **Anangabhima II**, also known as **Angangabhima III** of the **Ganga dynasty**.

- Some historians say the construction of the temple began during the reign of king **Anantavarman Chodagangadeva**, the founder of the dynasty, in the **12th century**.

Architecture of the temple

- The temple is built in the **Nagara** style (Sub-school: **Kalinga or Odisha school**) of temple architecture.
- The temple consists of four structures: **Vimana** or **Bada Deula** (sanctum sanctorum), **Jagamohana** or Mukhasala (the porch or mandap), **Natamandir** (the audience hall) and **Bhogamandap** (bhoga is the food offering made to gods).
- The **Vimana** is in the style of **Rekha deul**—characterised by a **curvilinear tower** known as Shikhara.
- The **Jagamohana** is in the form of **Pidha deula**—square building with a pyramid-shaped roof.

Other details

- It is built on a gigantic raised platform, Vimana on a **pancharatha ground plan** and is 65-m-high.
- Also revered is the **Aruna stambha** or the **Sun pillar**, the 33-ft-high **monolithic pillar of black chlorite** in front of the main entrance.
- The capital of the pillar is surmounted by a squatting **Garuda** (the mythological bird mount of Lord Vishnu).

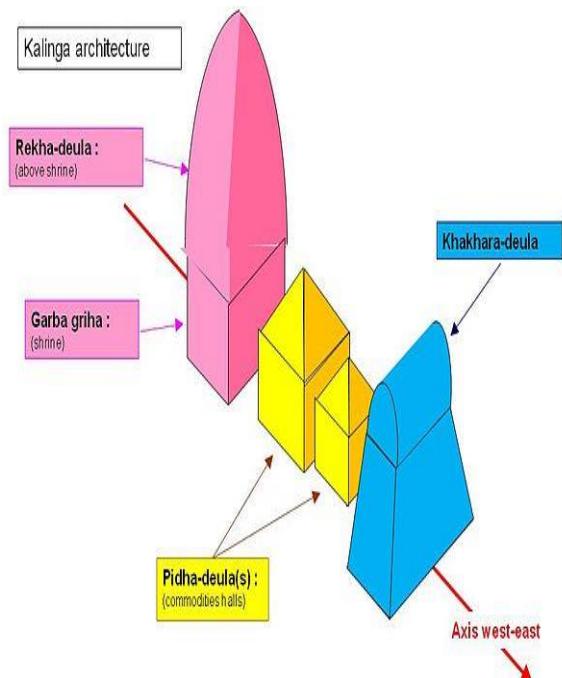
Why in News?

- The Supreme Court has modified its earlier order and allowed the annual Jagannath Rath Yatra in Odisha's Puri to be held with the coordination of the Temple committee, State and Central government without compromising with the health issue pertaining to Covid-19.

Related information

Kalinga school of architecture

- Kalinga temple style is broadly classified into **three** main categories, namely Rekha, Pidha and Khakhara.
- Rekha-deul** (temple) is distinguished with its **square plan** topped with a **curvilinear tower**.
- A **Pidha-deul**, also referred as **Bhadra deul**, also has a **square plan** topped with a **pyramidal tower** composed of horizontal tiers arranged in a receding manner.



- A **Khakhara deul** is surmounted with a barrel-shaped (**vault-shape**) tower over a **rectangular plan**.
- Most of the Kalinga temples fall under the Rekha category.
- Very few temples depict Khakhara style, usually these temples are dedicated to a form of Devi.
- Pidha-style is usually used for jagamohanas but not for the main deul.

7) Kodumanal megalithic site

What are Megoliths?

- A megalith is a **large prehistoric stone** that has been used to construct a structure or monument, either alone or together with other stones.
- Megaliths were constructed either as **burial (sepulchral) sites** or **commemorative (non-sepulchral) memorials**.
- The sepulchral sites include **dolmenoid cists** (box-shaped stone burial chambers), **cairn circles** (stone circles with defined peripheries) and **capstones** (distinctive mushroom-shaped burial chambers found mainly in Kerala).



- The **urn** or the sarcophagus containing the mortal remains was usually **made of terracotta**.
- Non-sepulchral megaliths include memorial sites such as **menhirs (single upright stone)**.

Megalithic culture in India

- The tradition of **constructing or raising huge stones** on different functions is termed as megalithic culture.
- The megalithic monuments of peninsular India are believed to have been erected in the **Iron Age (1500BC - 200AD)**.
- Megaliths are spread **across the Indian subcontinent**, though the **bulk of them are found in peninsular India**, concentrated in the states of Maharashtra (mainly in Vidarbha), Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Telangana.



- In concordance with their **belief in life after death**, the megalithic people were in the habit of interring burial goods along with mortal remains.
- The Megalith people, besides using **Black-and-Red Ware** type of pottery and **iron tools** and weapons, also used **gold, silver, copper** indicating that the Megalithic artisans were proficient in working out these metals as well.

- Megalithic culture finds **several references in ancient Tamil Sangam literature**. For instance, menhirs are referred to as **nadukal**.
- The prominent Megalithic sites are **Adichanallur** and **Paiyampalli** in Tamil Nadu; **Porkalam** in Kerala; **Nagarjunkonda** and **Yelleswaram** in Andhra Pradesh; **Naikund, Mahurjhari, Khapa, Talaghat** in Maharashtra; **Allahabad-Mirzapur-Varanasi region** of Uttar Pradesh, **Burzahom** in Kashmir etc.
- In Assam and Meghalaya, the Megaliths constitute a part of tradition still living among the natives.

Why in News?

- The recent Kodumanal (Erode district, **Tamilnadu**) excavation threw light on burial rituals and the concept of afterlife in megalithic culture.

News in Detail



- A total of 250 **cairn-circles** has been identified at the site.
- Earlier excavations revealed that the site served as a **trade-cum-industrial centre from 5th century BCE to 1st century BCE**. Also, multi-ethnic groups lived in the village, located about 500 metres away from the **Nooyal river**.
- The findings unearthed so far include an animal skull, possibly of a wolf or a dog; precious stones like beryl, carnelian, quartz, jasper, beads, gold pieces and needles; copper smelting units; the mud walls of a workshop; potteries; and Tamil Brahmi script.

8) Keeladi excavation

About Keeladi archaeological site

- The site Keeladi with pre-historic cultural deposit mound extending over a vast area of more than 110 acre is located in **Sivagangai District, Tamilnadu**.

- Excavation had revealed cultural traits in the form of structural activity (**brick structures, terracotta ring wells, terracotta pipes**).
- Antiquities like few pieces of **gold ornaments, copper objects, iron implements, terracotta gamesmen** (chessman), hopscotches (a game), ear ornaments, **spindle whorls, figurines**, beads of terracotta, glass, semi-precious stones (**agate, carnelian, crystal, etc.**) have been excavated from the site.



- Popular ceramic types like finer variety of Black and Red ware, Black ware, Black Polished ware, Red ware, Rouletted ware, few pieces of Arretines were also found.
- There are also a number of **graffiti sherds** of both pre and post firing nature.
- A good number of potsherds with **Tamil Brahmi script** were found which had several Sangam era Tamil names, which indicate a **highly literate society**.

Significance

- The Tamil Nadu Archaeology Department (TNAD) has stated that the Keeladi deposits could be safely dated to a period between **6th century BCE and 1st century CE**.
- The findings push back the date of **Tamil-Brahmi script** to another century, i.e., 6th century BCE.
- The results from the latest excavations at Keeladi suggest that the **second urbanisation** [the first being Indus] of Vaigai plains happened in Tamil Nadu around 6th century BCE as it happened in Gangetic plains- about 300 years earlier than previously believed — 3rd century BCE.
- There was **no evidence of any kind of religious worship**.

- Skeletal remains of oxen, cows, buffaloes and goats indicate that there was **cattle-rearing**.
- The antiquities, taken together, suggest that the prime occupation of the people of Keeladi was **agriculture**, which was supplemented by the **iron industry, carpentry, pottery-making and weaving**.
- Beads of agate, Carnelian and quartz indicate that they had **trade links with countries like Rome**.
- The Keeladi findings have led academics to describe the site as part of the **Vaigai Valley Civilisation**.

Why in News?

- Skeletal remains of a child were excavated recently from Konthagai village, part of the sixth phase of ongoing excavations in the ancient site of Keeladi. The skeleton was found buried between two terracotta urns.
- A gold coin that is said to have been used extensively in the 17th century AD, some shells and pots, have also been found recently.

Related information

Sangam era

- Tamil Sangam is an **assembly of poets**, who had its seat in **Madurai** between **4th century BCE and 2nd century BCE**.
- The works of this period are collectively called **Sangam Literature**.

9) Battle of Bhima Koregaon

What happened at the Battle of Bhima Koregaon?

- A small village in Pune district of Maharashtra, Bhima-Koregaon, named after river Bhima, is associated with an **important phase of Maratha history**.
- In the battle of Bhima Koregaon on January 1, 1818, the British, with just 834 infantrymen — about 500 of them from the Mahar community (dalit) — and 12 officers defeated the 28,000-strong army of **Peshwa Bajirao II**.
- It was one of the last battles of the **Third Anglo-Maratha War (1817-18)**, which ended the Peshwa domination.

Symbol of dalit emancipation

- The battle attained a legendary stature for Dalits, who consider the win as a victory of

- the Mahars against the injustices perpetrated by the Peshwas.
- A pillar, known as **Vijay Sthamb** (victory pillar), was installed by the East India Company (EIC) in memory of those who fought for them in the battle.
- It is at this pillar that thousands of Dalits come to pay respect every year on January 1.
- Babasaheb Ambedkar's visit to the site on January 1, 1927, revitalised the memory of the battle for the Dalit community, making it a rallying point and an assertion of pride.
- The Marathas advocate a nationalism point of view for the battle in which a native kingdom stood against the British colonialism.
- Thus the two communities are at the opposite sides of the divide even after 200 years in commemorating the battle.

Bhima Koregaon violence

- 2018 marked the 200th year of battle and hence there was a larger gathering at Bhima Koregaon as compared to previous years.
- During the celebrations there were violent clashes between Dalit and Maratha groups.

Why in News?

- The incident has been in news repeatedly for more than two years due to ongoing judicial cases regarding the violence that broke out during the commemoration of the battle in 2018.

10) Saindhava empire

About the empire

- The Saindhavas, also known as **Jayadrathas**, ruled **western Saurashtra** (now in Gujarat) from around 735 CE to 920 CE.
- Their capital was at **Bhutamabilika (now Ghumli)**.
- The known historical events during their rule are the attacks of Arabs repulsed by **Agguka I**.
- Their notable constructions are **Hindu monastery (mathika)** at **Ghumli** and temples dedicated to Surya, Shiva and Shakti (Goddess) at **Suvarnamanjari**.

Why in News?

- There was a proposal by an archaeologist to use LiDAR technology to explore the Saurashtra temple city named Ghumli, the capital of the Saindhava empire.

Defence

1) S-400 Triumph Air Defence Missile System

About S-400 missile system

- The S-400 Triumph is an **air defence missile system** developed by Almaz Central Design Bureau of **Russia**.
- It integrates a multifunction radar, autonomous detection and targeting systems.
- It is capable of firing three types of missiles to create a layered defence.
- The system can engage all types of aerial targets, including aircraft, unmanned aerial vehicles (UAV), and ballistic and cruise missiles, within the **range of 400km at an altitude of up to 30km**.
- The S-400 can be armed with **four different types of missiles** with ranges of 400 km, 250 km, 120 km and 40 km. The long-range radar can track more than 100 flying objects simultaneously while being able to engage a dozen targets.



Background

- In 2018, India had signed a \$ 5.2 billion deal for five regiments of the S-400 Triumph from Russia.

Why in News?

- Russia has assured that it would accelerate deliveries of some defence contracts with India.
- India has been asking Russia to speed up deliveries of the S-400 long range air defence system in addition to spares and support for military hardware.

2) INS Vikrant

About INS Vikrant

- Indigenous Aircraft Carrier 1 (IAC-1) is going to be the **first indigenously built**

aircraft carrier, now under construction by **Cochin Shipyard Ltd**.

- It will be called INS Vikrant after being inducted into the **Indian Navy**.
- IAC-1 was launched in February 2013, with final approvals expected to be received in early 2022.
- It uses a **Short Take Off- Barrier-Assisted Recovery system (STOBAR)** to launch and recover aircraft.
- The aircraft carrier will be able to accommodate up to 30 fighters and helicopters, including Mig-29K fighters jets and Ka-31 helicopters.

Why in News?

- The National Investigation Agency (NIA) has arrested two persons in connection with the theft onboard the Indigenous Aircraft Carrier under construction.

Related Information

About INS Vikramaditya

- INS Vikramaditya is at present **India's only operational aircraft carrier**.
- INS Vikramaditya is the Indian Navy's **largest short take-off, but assisted recovery (STOBAR) aircraft carrier and warship** converted from the Russian Navy's decommissioned **Admiral Gorshkov** vertical take-off and landing (VTOL) missile cruiser carrier.
- INS Vikramaditya was commissioned into service in **2013**.



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