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BATCH 03

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1 | Virtual court and e-challan project

CONTEXT:

Virtual court and e-challan project launched in Assam; Maharashtra also got it's second virtual court recently.

ABOUT:

- E-challan solution is an initiative of the **Union Ministry of Road Transport and Highways** (MoRTH) whereas the software has been developed by **National Informatics Centre (NIC).**
- It will replace the present concept of **manual challan** with an electronically generated digital challan.

What is Virtual Court?

- Virtual court is an initiative of E-Commitee of Supreme Court along with Department of Justice, Ministry of Law& Justice, Government of India.
- **Managed by:** Virtual Court is an online court being managed by **Virtual Judge** (which is not a person but an algorithm) whose jurisdiction can be extended to entire state and working hours may be 24X7.
- There is no brick& mortar building of the court. In a trial by Virtual Court, neither litigant shall come to the court nor will Judge have to sit physically in the court to adjudicate the case.
- The communication may only be in electronic form and the sentencing and further payment of fine or compensation will also be online.
- Only single process is allowed and there can be no argument. It may be proactive admission of guilt by the accused or proactive compliance of the cause by defendant on receipt of the summons in electronic form.
- On payment of Fine, such matters may be treated as disposed off. Citizen neither have to wait in lines in courts nor have to confront Traffic Police man.

> **Status of virtual courts in India:**
>
> ➤ A Virtual Court was inaugurated in Delhi on 26th July 2019 and in Haryana on 17th August 2019 to initially try Traffic Challan cases.
>
> ➤ Currently there are 9 Virtual courts functioning in India- Delhi (2 Courts), Haryana (Faridabad), Maharashtra (Pune), Madras, Karnataka (Bengaluru), Maharashtra (Nagpur), Kerala (Kochi) and Assam (Gauhati).
>
> ➤ They are all dealing with Traffic Challan cases only.
>
> ➤ Over 30 lakh cases have been handled by 7 virtual courts and in over 10 lakh cases online fine of more than Rs.123 Cr has been realised till recently.
>
> ➤ In fact, one single court in Delhi has singlehandedly collected more than Rs.115crore as online fines.

Significance of the concept

- It will increase productivity of citizen as well as judicial officers. It will promote greater accountability and less corruption in Traffic Police Department thus bettering life of people.
- In Assam due to Virtual Court work of 10 judges will be done by only single judge thus sparing 9 Judges for judicial work.

2	**Mission COVID Suraksha**

CONTEXT:

Government Launched Mission COVID Suraksha to accelerate Indian COVID-19 Vaccine Development

ABOUT:

- The Government of India (GOI) has announced the third stimulus package for the *Mission COVID Suraksha- The Indian COVID-19 Vaccine Development Mission*.
- This grant will be provided to the Department of Biotechnology (DBT) for Research & Development of Indian COVID-19 vaccines.
- The COVID-19 Vaccine development Mission with end-to-end focus from preclinical development through clinical development and manufacturing and regulatory facilitation for deployment, would consolidate all available and funded resources towards an accelerated product development.
- This will help accelerate development of approx. 5-6 vaccine candidates and ensure that these are brought closer to licensure and introduction in market for consideration of regulatory authorities for introduction in public health systems, to combat further spread of COVID infection.
- The important objectives of the fund will be accelerating pre-clinical& clinical development; licensure of COVID-19 vaccine candidates that are currently in clinical stages or ready to enter clinical stage of development.

> **The Department of Biotechnology (DBT):**
>
> DBT is an Indian government department, under the Ministry of Science and Technology responsible for administrating development and commercialisation in the field of modern biology and biotechnology in India. It was set up in 1986.

3	**12th BRICS summit**

CONTEXT:

Prime Minister led India's participation at the 12th BRICS Summit.

ABOUT:

- The 2020 BRICS summit was the twelfth annual BRICS summit, an international relations conference attended by the heads of state or heads of government of the five member states Brazil, Russia, India, China and South Africa.
- The meeting was originally scheduled to take place in Saint Petersburg but was changed to a video conference due to the outbreak of the global COVID-19 pandemic.
- India will be taking over the chairship of the BRICS, which would be the third BRICS Presidency for the country since its inception, after 2012 and 2016, and will host the 13th BRICS Summit in 2021.

> **BRICS:**
>
> ➤ BRICS is the acronym coined to associate five major emerging national economies: Brazil, Russia, India, China, and South Africa.

➤ The BRICS members are known for their significant influence on regional affairs.

➤ Since 2009, the BRICS nations have met annually at formal summits.

4 15th G20 Leaders' Summit

CONTEXT:

- The 2020 G20 Riyadh summit was the fifteenth meeting of Group of Twenty (G20). It was scheduled to take place in Riyadh, the capital city of Saudi Arabia. However, due to the COVID-19 pandemic, it was held virtually.

Key-highlights of the Summit

- At the invitation of His Majesty King Salman bin Abdulaziz Al Saud, Prime Minister Shri Narendra Modi attended the 15th G20 Summit .

- **Focus:** An inclusive, resilient, and sustainable recovery from the COVID-19.

- The leader discussed pandemic preparedness and the ways and means to restore jobs. The leaders also shared their vision for building an inclusive, sustainable, and resilient future.

- India called for a new **Global Index** for the Post-Corona World that comprises four key elements –
  ◉ creation of a vast Talent Pool
  ◉ ensuring that Technology reaches all segments of the society
  ◉ Transparency in systems of governance
  ◉ dealing with Mother Earth with a spirit of Trusteeship

- Based on this, the G20 can lay the foundation of a new world.

- Noting that 'Work from Anywhere' is a new normal in the post-COVID world, PM also suggested creation of a G20 Virtual Secretariat as a follow up and documentation repository.

G20:

➤ The Group of Twenty (G20) is the premier international forum for global economic cooperation.

➤ The members of the G20 are: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom, United States, and the European Union.

➤ G20 members account for 85 per cent of the world economy, 75 per cent of global trade, and two-thirds of the world's population, including more than half of the world's poor. G20 leaders meet annually at the G20 Summit.

➤ Finance Ministers and Central Bank Governors meet regularly.

➤ G20 ministerial meetings (e.g. trade, health, employment, agriculture) also occur as each G20 Presidency decides. G20 Engagement groups maintain a dialogue with policy makers. These groups represent civil society, business and labour leaders, the scientific and research community, think-tanks, women, and youth.

5	**Exercise Malabar 2020**

CONTEXT:

Phase 2 of Exercise MALABAR 2020 was conducted in Western Indian Ocean.

ABOUT:

- Taking forward the synergy achieved in the recently concluded Phase 1 of Exercise Malabar 2020, which was conducted in the Bay of Bengal , this phase involved coordinated operations of increasing complexity between the navies of Australia, India, Japan and the United States.

- Phase 2 of Exercise MALABAR 2020 witnessed joint operations, centered around the Vikramaditya Carrier Battle Group of the Indian Navy and Nimitz Carrier Strike Group of the US Navy.

- The Malabar series of exercises, which began as an annual bilateral naval exercise between India and the US in 1992, has seen increasing scope and complexity over the years.

- The 24ᵗʰ edition of MALABAR enhanced convergence of views amongst the four vibrant democracies on maritime issues, and showcases their commitment to an open, inclusive Indo-Pacific and a rules-based international order.

6	**Indo-Thai Coordinated Patrol (CORPAT)**

CONTEXT:

The 30ᵗʰ edition of India-Thailand Coordinated Patrol (Indo-Thai CORPAT) between the Indian Navy and the Royal Thai Navy was conducted recently.

ABOUT:

- As part of Government of India's vision of SAGAR (Security And Growth for All in the Region), the Indian Navy has been involved in assisting countries in the Indian Ocean Region with EEZ Surveillance, Humanitarian Assistance and Disaster Relief (HADR), and other capacity building and capability-enhancement activities, on their request.

- India and Thailand have especially enjoyed a close and friendly relationship covering a wide spectrum of activities and interactions, which have strengthened over the years.

- To reinforce maritime links, the two navies have been carrying out CORPAT along their **International Maritime Boundary Line** twice a year since 2005, with the aim of keeping this vital part of the Indian Ocean safe and secure for commercial shipping and international trade.

- CORPAT builds up the understanding and interoperability between navies and facilitates institution of measures to prevent and suppress **Illegal Unreported Unregulated (IUU)** fishing, drug trafficking, maritime terrorism, armed robbery and piracy.

- It further enhances the operational synergy by exchange of information for prevention of smuggling, illegal immigration and for conduct of SAR operations at sea.

> **The Humanitarian Assistance and Disaster Relief (HADR):**
>
> ▶ The Humanitarian Assistance and Disaster Relief (HADR) Programme has been established to facilitate and enhance cooperation on preparedness and response strategies to the fragile and unpredictable situations we face in the Asia-Pacific.

> ➤ Aside from comprehensively investigating regional emergency response frameworks, governance issues, disaster preparedness strategies and the identification and development of response niches for civilian and military actors, the programme also seeks to develop the next generation of global leaders in HADR through roundtable sessions, dialogues and workshops.

SAGAR (Security and Growth for All in the Region):

> ➤ Looking at such economic and strategic importance of Indian Ocean islands as also recognized by other nations, SAGAR (Security and Growth for All in the Region) was launched by India in 2015.

> ➤ The main purpose for SAGAR was tackling regional issues like providing humanitarian help to maritime neighbors and counter non-state actors like pirates in the Indian Ocean. 2004 tsunami, repeated earthquakes, threat of rising sea water, water crisis of Maldives and Indian help that followed shows the importance of this initiative.

7 | Micro food processing Enterprises (PM-FME) Scheme

CONTEXT:

Union Minister for Food Processing Industries virtually inaugurated the capacity building component of the Pradhan Mantri Formalisation of Micro food processing Enterprises scheme (PM-FME Scheme).

ABOUT:

- Under the PM-FME scheme, capacity building is an important component.

- The scheme envisages imparting training to food processing entrepreneurs, various groups, viz., SHGs / FPOs / Co-operatives, workers, and other stakeholders associated with the implementation of the scheme.

- Under the capacity building component of the PM-FME scheme, training of the Master Trainers would be delivered through online mode, classroom lecture and demonstration, and self-paced online learning material.

- Under the PM-FME scheme, states have identified the food products of districts, keeping in view the availability of existing clusters and raw materials.

> **PM-FME Scheme:**
>
> ➤ Launched under the Aatmanirbhar Bharat Abhiyan, the Pradhan Mantri Formalisation of Micro food processing Enterprises (PM-FME) Scheme is a centrally sponsored scheme aims to enhance the competitiveness of existing individual micro-enterprises in the unorganized segment of the food processing industry and promote formalization of the sector and provide support to Farmer Producer Organizations, Self Help Groups, and Producers Cooperatives along their entire value chain.
>
> ➤ The scheme envisions to directly assist the 2,00,000 micro food processing units for providing financial, technical, and business support for upgradation of existing micro food processing enterprises.

8   Bloomberg New Economy Forum

CONTEXT:

Prime Minister addressed at the 3rd Annual Bloomberg New Economy Forum, 2020.

ABOUT:

- The Bloomberg New Economy Forum was established in 2018 by Mr. Michael Bloomberg.
- It seeks to build a community of leaders to engage in real conversations leading to actionable solutions about the critical challenges facing a world economy in the throes of a historic transition.
- The inaugural Forum was held in Singapore, and the second annual Forum was hosted in Beijing.
- These covered a range of topics, including global economic management, trade and investment, technology, urbanization, capital markets, climate change, and inclusion.
- This year, as the world economy is grappling with the Covid-19 pandemic, the forum will witness discussions centered on refuelling the economy and charting a course for the future.

9   RE-Invest 2020

CONTEXT:

Prime Minister inaugurated the virtual 3rd Global Renewable Energy Investment Meeting and Expo (RE-Invest 2020). The summit was organised by the Ministry of New and Renewable Energy.

ABOUT:

- The theme for RE-Invest 2020 is 'Innovations for Sustainable Energy Transition'.
- It featured a 3-day conference on renewables and future energy choices, and an exhibition of manufacturers, developers, investors and innovators.
- It aimed to accelerate the worldwide effort to scale up development and deployment of renewable energy and connect the global investment community with Indian energy stakeholders.
- It aimed to build upon the success of the first two editions held in 2015 and 2018 and provide an international forum for investment promotion in renewable energy.

10   SDG Investor Map for India

CONTEXT:

UNDP and Invest India have launched the SDG Investor Map for India, laying out 18 Investment Opportunities Areas (IOAs) in six critical SDG enabling sectors, that can help India push the needle forward on Sustainable Development.

ABOUT:

- The Map comes at a critical time for India. With the emergence of the COVID-19 pandemic, the financing gap for the SDGs in India has only widened further and decades of development progress is nearly on the verge of reversal.

- Investing in the SDGs at this point is crucial to 'Building Back Better' and making the economy and our societies more resilient and sustainable.

- Enhanced productivity, technology adoption and increased inclusion are all critical factors that this map uses to identify the most attractive sectors for investors.

- The observations from the map present a strong case for investing in SDG enabling sectors and IOAs, bridging the gap between high-level development targets and the need for commercially viable returns.

Significance of the map

- Moreover, investing in the SDGs is crucial to 'Building Back Better' from COVID-19 and enhancing India's resilience to future threats.

- Investing in opportunities that enhance employment and employability, push forward the inclusion of underserved communities and leverage technology will be of essence to India as it grapples with the challenges of a post-COVID economy.

- By mapping the overlaps and gaps between public sector priorities and private sector interest, the SDG Investor Map lays out pathways that can bring together private-sector investment and public sector support for 6 SDG-enabling sectors including Education, Healthcare, Agriculture & Allied Activities, Financial Services, Renewable Energy & Alternatives and Sustainable Environment.

11 | Quick Reaction Surface to Air Missile (QRSAM) System

CONTEXT:

Second Successful Flight Test of QRSAM System

ABOUT:

- In yet another flight test, the Quick Reaction Surface to Air Missile (QRSAM) System tracked the target accurately and successfully neutralised the airborne target.

- The flight test, second in the series was conducted from the Integrated Test Range, Chandipur, off the coast of Odisha. The test was carried out once again, against the high performance Jet Unmanned Aerial Target called Banshee, which simulates an aircraft.

- The Radars acquired the target from a long range and tracked it till the mission computer automatically launched the missile. Continuous guidance was provided through Radar data link.

- Missile entered the terminal active homing guidance and reached the target close enough for proximity operation of warhead activation.

- The flight test was conducted in the deployment configuration of the weapon system comprising of Launcher, fully Automated Command and Control System, Surveillance System and Multi Function Radars.

- The QRSAM weapon system, which can operate on the move, consists of all indigenously developed subsystems. All objectives of the test were fully met. The launch was carried out in the presence of the users from Indian Army.

Quick Reaction Surface-to-Air Missile (QRSAM):

➤ QRSAM is a missile developed by the Defence Research and Development Organisation (DRDO) in association with Bharat Electronics Limited and Bharat Dynamics Limited for the Indian Army.

➤ This missile is an all-weather, all-terrain surface-to-air missile equipped with electronic counter measures against jamming by aircraft radars.

➤ The missile can be mounted on a truck and is stored in a canister.

➤ QRSAM uses solid-fuel propellant and has a range of 25–30 km.

➤ The single-staged missile utilized by the system is propelled using solid propellants.

➤ The missile is equipped with a midcourse inertial navigation system with a two-way data link and a DRDO-developed terminal active seeker. The system has the capability to search and track targets while moving.

➤ QRSAM is a compact weapon system and is mobile. It has a fully automated Command and Control System.

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12 India's AI supercomputer Param Siddhi

CONTEXT:

- **Param Siddhi, the high performance** computing-artificial intelligence (HPC-AI) supercomputer established under National Supercomputing Mission (NSM) at C-DAC has **achieved global ranking of 63 in TOP 500** most powerful non-distributed computer systems in the world.

ABOUT:

- The AI system will strengthen application development of packages in areas such as advanced materials, computational chemistry & astrophysics, and several packages being developed under the mission on platform for drug design and preventive health care system, flood forecasting package for flood prone metro cities like Mumbai, Delhi, Chennai, Patna and Guwahati.

- This will accelerate R&D in war against COVID-19 through faster simulations, medical imaging, genome sequencing and forecasting and is a boon for Indian masses and for start-Ups and MSMEs in particular.

- It is a boon for application developers and will help testing of weather forecasting packages by NCMRWF & IITM, geo-exploration packages for oil and gas recovery; packages for aero-design studies; computational physics and mathematical applications and even online courses for education.

Supercomputer:

➤ A supercomputer is a computer with a high level of performance as compared to a general-purpose computer.

➤ The performance of a supercomputer is commonly measured in floating-point operations per second (FLOPS) instead of million instructions per second (MIPS).

➤ Since 2017, there are supercomputers which can perform over 1017 FLOPS (a hundred quadrillion FLOPS, 100 petaFLOPS or 100 PFLOPS).

➤ Since November 2017, all of the world's fastest 500 supercomputers run Linux-based operating systems.

➤ **The TOP500 list**: The TOP500 project ranks and details the 500 most powerful non-distributed computer systems in the world. Since June 2020, the Japanese Fugaku is the world's most powerful supercomputer, reaching initially 415.53 petaFLOPS and 442.01 peta Flops after an update in November 2020 on the LINPACK benchmarks.

➤ China currently dominates the list with 212 supercomputers, leading the second place (United States) by a record margin of 113.

➤ As of June 2020, when ranking by number of supercomputer systems in the TOP500 list, India is ranked 23rd in the world. The Cray XC40-based **Pratyush** is the fastest supercomputer in India.

➤ Supercomputers play an important role in the field of computational science, and are used for a wide range of computationally intensive tasks in various fields, including quantum mechanics, weather forecasting, climate research, oil and gas exploration, molecular modeling (computing the structures and properties of chemical compounds, biological macromolecules, polymers, and crystals), and physical simulations (such as simulations of the early moments of the universe, airplane and spacecraft aerodynamics, the detonation of nuclear weapons, and nuclear fusion).

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13 | M Dwarf Stars

CONTEXT:

Scientists establish empirical relationships for identifying M Dwarf stars that can be potentially habitable.

ABOUT:

- The clouds are becoming clearer in the search for a new kind of life in the universe. Scientists have established some empirical relationships enabling the use of spectral indices for finding the fundamental parameters of M dwarf stars that could identify them as potentially habitable.

- M dwarfs are the tiniest of the stars that have masses ranging from about 8 percent to about 50 percent of the Sun's mass.

- More than 70% of all stars in our Galaxy are M dwarfs (also known as red dwarfs), dominating the stellar populations by number. For long, scientists have considered them unlikely host of habitable planets.
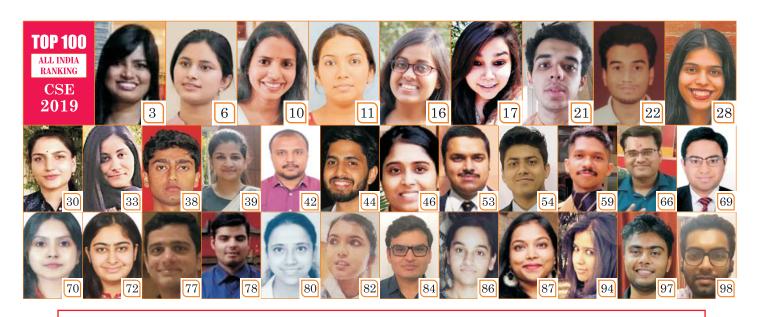
- As new evidence that the chances of the occurrence of planetary systems, especially Earth-like planets orbiting in 'habitable zones', increases with decreasing stellar mass and radius, M dwarfs are becoming attractive targets for potentially habitable extra-planet searches due to their proximity, small size, and low mass.
- NASA's *Kepler* mission suggests that M dwarfs are swarming with rocky planets, making the characterization of these low-mass stars crucial.
- The determination of stellar parameters in M dwarfs have been a challenging task as these M dwarfs are smaller, cooler, and fainter than Sun-like stars. These new empirical relationships could help overcome this challenge.

Dwarf star:

➤ A dwarf star is a star of relatively small size and low luminosity. Most main sequence stars are dwarf stars. The term was originally coined in 1906 when the Danish astronomer Ejnar Hertzsprung noticed that the reddest stars—classified as K and M in the Harvard scheme could be divided into two distinct groups.

➤ They are either much brighter than the Sun, or much fainter. To distinguish these groups, he called them "giant" and "dwarf" stars, the dwarf stars being fainter and the giants being brighter than the Sun.

➤ Most stars are currently classified under the Morgan Keenan System using the letters O, B, A, F, G, K, and M, a sequence from the hottest: O type, to the coolest: M type. The scope of the term "dwarf" was later expanded to include the following:

- **Red dwarfs** are low-mass main-sequence stars.
- **Yellow dwarfs** are main-sequence (dwarf) stars with masses comparable to that of the Sun.
- **Orange dwarfs** are K-type main-sequence stars.
- **A blue dwarf** is a hypothesized class of very-low-mass stars that increase in temperature as they near the end of their main-sequence lifetime.
- **A white dwarf** is a star composed of electron-degenerate matter, thought to be the final stage in the evolution of stars not massive enough to collapse into a neutron star or black hole—stars less massive than roughly 9 solar masses.
- **A black dwarf** is a white dwarf that has cooled sufficiently that it no longer emits any visible light.
- **A brown dwarf** is a substellar object not massive enough to ever fuse hydrogen into helium, but still massive enough to fuse deuterium—less than about 0.08 solar masses and more than about 13 Jupiter masses.

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