

**GEOGRAPHY- PHYSICAL AND ECONOMIC****Coronal Heating Problem**

A group of scientists working at the Pune-based National Centre for Radio Astrophysics (NCRA) have recently discovered tiny flashes of radio light emanating from all over the sun, which they say could help in explaining the long-pending coronal heating problem.

**About:**

- The solar corona, the outer layer of the Sun's atmosphere, is composed of extreme high temperature gas, known as plasma, with temperatures reaching millions of degrees Celsius.
- As the outer layer of the Sun, the part farthest from the core where the nuclear reactions powering the Sun occur, it would logically be expected to be the coolest part of the Sun. But in fact, it is 200 times hotter than the photosphere, the layer beneath it.
- This contradiction, dubbed "the coronal heating problem" has puzzled astrophysicists ever since the temperature of the corona was first measured over 70 years ago.

**SOCIO-ECONOMIC DEVELOPMENT****Turant Customs**

Central Board of Indirect Taxes and Customs (CBIC) launched its flagship programme Turant Customs at Bengaluru and Chennai.

**About:**

- Importers will now get their goods cleared from Customs after a faceless assessment is done remotely by the Customs officers located outside the port of import.
- Now, the goods imported at Chennai may be assessed by the Customs officers located at Bengaluru and vice versa, as assigned by the Customs' automated system.
- The start of Turant Customs at Bengaluru and Chennai will be the first phase of the All India roll out which would get completed by 31st December this year.
- The first phase will cover imports of Mechanical, Electrical and Electronics machineries at the ports, airports and ICDs of Bengaluru and Chennai.
- Turant Customs will benefit the importers by eliminating routine interface with the Customs officers and providing uniformity in assessment across the country.

**Essential Commodities Act, 1955**

The Union Cabinet has approved an ordinance to amend The Essential Commodities Act, 1955, to deregulate commodities such as cereals, pulses, oilseeds, edible oils, onion and potatoes. The ordinance has introduced a new subsection (1A) in Section 3 of the Act.

**About the Act:**

- There is no specific 'definition of essential commodities' in The EC Act. Section 2(A) of the act states that an "essential commodity" means a commodity specified in the "Schedule" of this Act.
- The Act gives powers to the central government to add or remove a commodity in the "Schedule." The Centre, if it is satisfied that it is necessary to do so in public interest, can notify an item as essential, in consultation with state governments.
- By declaring a commodity as essential, the government can control the production, supply, and distribution of that commodity, and impose a stock limit.

**CSIR And AIM Sign a LoI To Foster Innovation**

Council of Scientific and Industrial Research (CSIR) and Atal Innovation Mission (AIM) have signed a Letter of Intent (LOI) to promote a culture of innovation and entrepreneurship in various sectors.

Major areas of mutual interest include:

- Supporting world class start-ups through CSIR Incubators under Atal Innovation mission initiatives and working together on new models of innovation including setting up of CSIR Innovation Parks.
- Stimulating innovation and research in the MSME industry by CSIR in collaboration with ARISE initiative of AIM. This initiative works to stimulate innovation and research in the MSME industry.
- Creating problem solving mind-set across schools in India through close cooperation between Atal Tinkering Labs and CSIRs 'JIGYASA' a Student-Scientist connect program where in >3 lakhs students across the country have been exposed to science and technology.

**ENVIRONMENT- CONSERVATION, BIO-DIVERSITY AND ISSUES****Coral Triangle Day**

The Coral Triangle Day 2020 was observed on June 9.

About:

- The Coral Triangle Day was established on June 9, to celebrate and raise awareness of the ocean conservation and protection, especially on the Coral Triangle.
- The Coral Triangle day was observed the first time on June 9, 2012, in conjunction with the World Oceans Day on June 8.
- The day is observed by the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF), also shortly known as the Coral Triangle Initiative (CTI). It is a multilateral partnership of six countries (Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands, Timor-Leste).

Coral Triangle:

- Coral Triangle, the world's epicentre of marine diversity, is a vast ocean expanse that geographically spreads across 6 countries in Asia and the Pacific: Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands, and Timor Leste (the "CT6" countries).
- It is considered as one of the 3 mega ecological complexes on Earth, together with Congo Basin and the Amazon Rainforest. The region contains 76% of all known coral species, 37% of all known coral reef fish species and 53% of the world's coral reefs.

**INTERNAL SECURITY, DISASTER MANAGEMENT****Delhi Disaster Management Authority**

Delhi Lieutenant Governor and Chairman of Delhi Disaster Management Authority Anil Baijal has overruled Arvind Kejriwal government's order that only Delhi residents will be admitted to government hospitals in the city for COVID-19 treatment.

About:

- Delhi Disaster Management Authority (DDMA) was constituted in 2008 under the Chairpersonship of Lt. Governor of Delhi for an effective and practicable framework for disaster management in Delhi.
- An Apex Committee headed by the Lt. Governor of Delhi will govern the Disaster Management Authority.
- The Authority will function through a secretariat (The DDMA Secretariat) which will be called the Disaster Management Center.
- The Divisional Commissioner of Delhi as the head of the nodal department for disaster management in Delhi will be the Convenor of the DDMA Secretariat.

Recent development:

- Baijal has directed authorities to ensure that treatment is not denied to any patient on the ground of not being a resident of the national capital.

- Earlier, Chief Minister Arvind Kejriwal had announced that all government and private hospitals in the city will only treat Delhi residents till the rising COVID-19 cases are contained.

### **SCIENCE AND TECHNOLOGY- EVERYDAY SCIENCE, SPACE, NUCLEAR, DEFENCE ETC**

#### **Ananya**

Defence Institute of Advanced Technology (DIAT), a Deemed University, Pune has developed a Nano-technology based disinfectant spray to combat COVID-19 by disinfecting all types of surfaces.

#### **About:**

- It has been named “ANANYA”. This can be used by anyone, from a common man to a healthcare worker, for individual as well as large scale use.
- This spray can be used on masks, PPEs, hospital linens, as well as other likely contaminated surfaces such as medical instruments, elevator buttons, door knobs, corridors and rooms.
- This Nano-technology assisted formulation will not only stop the novel coronavirus from entering human body, but it will also kill the virus when the virus comes in contact with this formulation layer on masks and PPEs.
- This is a water based spray and will be effective for more than 24 hours after spray.

#### **Coronavirus Therapies**

A look at 8 COVID therapies being used in hospitals in Mumbai and elsewhere.

#### **List of 8 therapies being used in Indian hospitals for fighting COVID:**

- Remdesivir: Remdesivir, an antiviral drug first developed for treating Ebola in 2014, is one of the possible Covid-19 treatments being investigated in the WHO's Solidarity Trial. It inhibits viral replication in the body.
- Favipiravir: Favipiravir is an antiviral given to inhibit viral replication. It is used as an anti-influenza drug.
- Tocilizumab: This is an immunosuppressant commonly used to treat for rheumatoid arthritis.
- Itolizumab: This drug is commonly used for the skin disorder psoriasis, rheumatoid arthritis, multiple sclerosis, and autoimmune disorders.
- Hydroxychloroquine: This antimalarial drug is a subject of debate over its efficacy against Covid. India is the largest producer of this drug.
- Doxycycline + ivermectin: Doxycycline is an antibiotic used to fight infection in the urinary tract, eye, or respiratory tract. Ivermectin is an anti-parasite drug for treatment of scabies, head lice, and filariasis. The combination is used to treat Covid patients with acute symptoms.
- Ritonavir + lopinavir: These antivirals are commonly used to treat HIV patients.
- Plasma therapy: This is meant for critical patients with low oxygen saturation levels, or those suffering a cytokine storm.

#### **Light Detection And Ranging (Lidar)**

U.K.-based archaeologists have discovered two Roman roads and 30 prehistoric or Roman large embanked settlement enclosures in Tamar Valley, England by analysing images derived from Light Detection and Ranging (LiDAR) data.

#### **About:**

- Lidar, which stands for Light Detection and Ranging, is a remote sensing method that 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.
- Lidar systems allow scientists and mapping professionals to examine both natural and manmade environments with accuracy, precision, and flexibility.

**DAILY ANSWER WRITING PRACTICE**

**Qns. What are the steps that need to be taken to promote sustainable agriculture and food security in the wake of climate change?**

Intergovernmental Panel on Climate change (IPCC) has recently released a report stating that the world is set to breach the global warming limit of 1.5°C between 2030 and 2052. The agriculture will also be affected due to extreme weather events like drought, erratic rainfall, delayed onset of monsoon flood, cyclone, hail storm, heat wave etc. Climate change can affect crop yields (both positively and negatively), as well as the types of crops that can be grown in certain areas, by impacting agricultural inputs such as water for irrigation, amounts of solar radiation that affect plant growth, as well as the prevalence of pests.

Steps that can be taken

- **Resilient Intercropping System:** To deal with delayed monsoon alternate crops of short duration varieties like black gram, groundnut can be grown etc. That will help in maintaining a source of income if the monsoon is delayed.
- **Zero tillage Adoption of Zero Tillage** will reduce the loss and increase the production. Zero-till (ZT) sowing minimizes losses due to the lodging of wheat (bending of the stem).
- **Efficient water use:** Efficient water and nutrient management should be done to enhance efficiency. Methods like drip-irrigation must be used in place of flood irrigation to save water.
- **Climate tolerant crops:** The government should incentivize farmers to use climate-tolerant crop varieties. It will help farmers to deal with crop failures due to climate change. E.g. Pokkali Rice in Kerala which is a saline tolerant rice variety.
- **Crop Diversification:** Crop diversification refers to the addition of new crops or cropping systems to agricultural production on a particular farm. Crop Diversification helps in agriculture sustainable and helps in maintaining ecological balance.

Way Forward

Making agriculture sustainable will help in achieving the Sustainable Development Goal 2 and 13 of Zero Hunger and take action to combat climate change and its impacts respectively. The government of India has launched the National Mission for Sustainable Agriculture (NMSA) to promote sustainable agriculture and to ensure food security.