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National Supercomputing Mission (NSM)

- NSM is jointly led by DST and Ministry of Electronics and Information Technology (MeitY).
- Commissioned in May 2015, the nodal agencies spearheading the mission are Centre for Development of Advanced Computing (C-DAC), Pune, and Indian Institute of Sciences (IISc),Bengaluru.
- The NSM envisaged setting up a network of 70 high-performance computing facilities across academia and research institutes, by 2022.
- Since the mission was approved until September 2019, only three systems

1. PARAM Shivay - IIT-BHU
2. PARAM Shakti - IIT-Kharagpur
3. PARAM Bhrahma - Indian Institute of Science, Education and Research (IISER),Pune.

- They are equipped with applications from domains like Weather and Climate, Computational Fluid Dynamics, Bioinformatics, and Material science.
- According to union government's recent plan India is all set to experience the highest ever boost in its supercomputing capacities, with 14 new supercomputers set to be deployed this year.
- These systems would be installed at various national-level research laboratories and academic institutions by end of 2020.
- Once deployed, the total number of supercomputers under Rs 4,500 crore-National Supercomputing Mission (NSM) would grow to 17.
- Three New systems will be made operational at

1. IIT-Kanpur,
2. Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru,
3. IIT-Hyderabad.

- Of the 11 new supercomputing systems eight systems, with collectively compute power of 16 PetaFlop, will be deployed at institutions located in India's Northeastern region.
- Three of the new systems, each having a compute power of 3PetaFlop, will be commissioned at

1. IIT-Mumbai,
2. IIT-Chennai
3. Inter University Accelatator Centre, Delhi.

- These systems will form the backbone of the National Knowledge Network.

Peta Flops

- In computing, floating point operations per second (FLOPS, flops or flop/s) is a measure of computer performance, useful in fields of scientific computations that require floating-point calculations.
- For such cases it is a more accurate measure than measuring instructions per second.

Computer performance

Name	Unit	Value
kiloFLOPS	kFLOPS	10^3
megaFLOPS	MFLOPS	10^6
gigaFLOPS	GFLOPS	10^9
teraFLOPS	TFLOPS	10^{12}
petaFLOPS	PFLOPS	10^{15}
exaFLOPS	EFLOPS	10^{18}
zettaFLOPS	ZFLOPS	10^{21}
yottaFLOPS	YFLOPS	10^{24}

National Knowledge Network

- In March 2010, the Cabinet Committee on Infrastructure (CCI) approved the establishment of the National Knowledge Network (NKN) at an outlay of Rs 5990 Crore, to be implemented by NIC over a period of 10 years.
- The idea of setting up of a National Knowledge Network was deliberated at the office of Principal Scientific Advisor to the Government of India and the National Knowledge Commission.
- NKN is intended to connect all the knowledge and research institutions in the country using high bandwidth / low latency network.
- In India, NKN with its multi-gigabit capability aims to connect all universities, research institutions, libraries, laboratories, healthcare and

agricultural institutions across the country to address such paradigm shift.

Long-Tailed Macaques

- In recent times, there has been a lot of interest among primatologists in studying object handling and tool-use in non-human primates such as apes and chimpanzees.
- Macaca fascicularis Umbrosus which are vulnerable under IUCN Red list, are the only Old World monkeys who use stone tools in their daily foraging.
- Stone tools in the prehistoric records are a key source of evidence for understanding early hominin technological and cultural variation.
- Primate archaeology is well placed to improve our scientific knowledge by using the tool behaviors of living primates as models to test hypotheses related to the adoption of tools by early stone-age hominins.
- Scientists do not know for certain how or why certain groups have developed this behavior.
- This behavior is mainly observed in populations that live along the ocean shores of southern Thailand and Myanmar where long-tailed macaques use tools primarily to prey on shellfish, including oysters, crabs and mussels.
- The Nicobar long tailed macaque.Macaca fascicularis umbrosus, is one such species found in the three southernmost islands (viz. Great Nicobar, Little Nicobar and Katchal) of the Andaman and Nicobar archipelago, India.
- The interesting part is that the same foraging behavior creates distinct tool evidence in the environment.

Teesta River

- Teesta River (or Tista River) is a 315 km long river that rises in the eastern Himalayas, flows through the Indian states of Sikkim and West Bengal through Bangladesh and enters the Bay of Bengal.
- The Teesta River originates from the Pahunri (or Teesta Kangse) glacier above 7,068 metres and flows southward through gorges and rapids in the Sikkim Himalaya.
- It drains an area of 12,540 Sq.Km, It forms the border between Sikkim and West Bengal.
- Recently Border Roads Organisation (BRO) opened for traffic 360 feet long bailey suspension bridge over Teesta River in Munshithang near

Chungthang town.
- The bridge will give impetus to tourism and facilitate the movement of logistics for the Armed Forces deployed in forward areas.

Relaxation of FDI norms in Defence Sector

- In May 2001, the Defence Industry sector, which was hitherto reserved for the public sector, was opened up to 100% for Indian private sector participation, with Foreign Direct Investment (FDI) up to 26% both subject to licensing.
- FDI in defence industry sector is subject to industrial license under Industries (Development & Regulation) Act, 1951 and manufacturing of small arms and ammunition under the Arms Act, 1959.
- Further in 2016, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry has allowed FDI under automatic route up to 49% and above 49% through government route wherever it is likely to result in access to modern technology or for other reasons to be recorded.
- As per the data furnished by 79 companies in Defence and Aerospace sector, so far (i.e. till December, 2019), FDI inflows of over Rs. 3155 crores have been reported in Defence and Aerospace sectors.
- FDI inflows of over Rs. 1834 crores have been reported in Defence and Aerospace sector after 2014.

Section 188 of IPC

- Section 3 of the Epidemic Diseases Act, 1897, provides penalties for disobeying any regulation or order made under the Act.
- These are according to Section 188 of the Indian Penal Code (Disobedience to order duly promulgated by public servant).
- Under Section 188, there two offences:

1. Disobedience to an order lawfully promulgated by a public servant, If such disobedience causes obstruction, annoyance or injury to persons lawfully employed

- **Punishment:** Simple Imprisonment for 1 month or fine of Rs 200 or both

2. If such disobedience causes danger to human life, health or safety, etc.

- **Punishment:** Simple Imprisonment for 6 months or fine of Rs 1000 or both
- According to the First Schedule of the Criminal Procedure Code (CrPC),

1973, both offences are cognizable, bailable, and can be tried by any magistrate.

- There must be evidence that the accused had knowledge of the order with the disobedience of which he is charged.
- Mere proof of a general notification promulgating the order does not satisfy the requirements of the section.
- Mere disobedience of the order does not constitute an offence in itself, it must be shown that the disobedience has or tends to a certain consequence.
- The orders issued to curb the spread of the coronavirus have been framed under the Epidemic Diseases Act, 1897, which lays down punishment as per Section 188 of the Indian Penal Code, 1860.
- In the past, the Act has been routinely enforced across the country for dealing with outbreaks of diseases such as swine flu, dengue, and cholera.
- Its penal provisions are currently being invoked by states to contain the COVID-19 pandemic.

Anosmia

- Anosmia, the loss of sense of smell, and Ageusia, an accompanying diminished sense of taste, have emerged as peculiar telltale signs of COVID-19, the disease caused by the coronavirus, and possible markers of infection.
- Accoreding to recent findings significant numbers of coronavirus patients experienced anosmia, saying that in South Korea, where testing has been widespread, 30% of 2,000 patients who tested positive experienced anosmia as their major presenting symptom (these were mild cases).
- Researchers has advised adults who lose their senses of smell to isolate themselves for seven days, even if they have no other symptoms, to slow the disease's spread.

Source: The Hindu, PIB, Indian Express