National Supercomputing Mission

National Supercomputing Mission, is a mission of the Government of India to boost the supercomputing capabilities of India. This mission consists of designing and manufacturing 73 supercomputers in India. These clusters of supercomputers will be connected to various academic and research institutions across India. This grid will be connected to the National Knowledge Network (NKN). This is a Rs 4,500 Crore project. In 2018, the Government of India awarded a contract to French company Atos to build supercomputers under this mission. Atos has collaborated with Indian partners in Chennai and Pune to build most of the required parts.

Latest Development Regarding the National Supercomputer Mission

The Ministry of Electronics and Information Technology and Department of Science and Technology announced on April 12 2021 that, the second phase of the National Supercomputing Mission (NSM) will be completed by September this year, taking India's total computational capacity to 16 Petaflops.

So far, over 4,500 people have been trained in HPC and further training in Artificial Intelligence will be held at special NSM nodal centres established at four IITs — Kharagpur, Madras, Goa and Palakkad.

What is the name of Indias' First Supercomputer?

India's first supercomputer was PARAM 8000. PARAM stood for Parallel Machine. It was developed by the Centre for Advanced Computing (C-DAC) in 1991, with a speed of 1 Gigaflop.

Which is India's Fastest Supercomputer?

Currently, Pratyush and Mihir are the Fastest Supercomputers in India. These are the 2 High-Performance Computing Units (HPC) with a combined speed of 6.8 PetaFlops. Pratyush is established in Indian Institute of Tropical Meteorology (IITM), Pune. Mihir is established in the National Centre for Medium-Range Weather Forecast (NCMWF), Noida.

Pratyush and Mihir are used for the following applications.

1. Weather forecasting
2. Air quality
3. Fishing
4. To detect natural calamities

Which are the Nodal Agencies for Implementing National Supercomputing Mission?

Government of India departments and research institutions are part of the implementation.

1. Department of Science and Technology (Government of India)
2. Department of Electronics and Information Technology (DeitY)
3. Centre for Development of Advanced Computing (C-DAC)
4. Indian Institute of Science (IISc)

What will be the Applications of these Supercomputers?

Supercomputers can be used for many new-age applications. Few examples are given below.

1. Weather forecasting
2. Natural disaster predictions
3. Drug discovery
4. Space applications
5. Aerodynamic research
6. 3D nuclear test simulations.

Where will the first 3 Supercomputers be set up under the National Supercomputing Mission (NSM) mission?

The first 3 Supercomputers will be set up in

1. IIT BHU - Supercomputer with a speed of 1 Peta Flop - It was inaugurated in 2019, it has been named 'Param Shivay'.
2. IIT Kharagpur - Supercomputer with a speed of 650 Teraflops.
3. IIITM Pune - Supercomputer with a speed of 650 Teraflops.

What are the three-phases of the National Supercomputing Mission?

Under Phase-1 computing speed of 6.6 PF will be set up. In Phase-22, 8 more institutions will be equipped with supercomputing facilities by April 20201, with a total of 10 PF compute capacity.

MoUs have been signed with a total 14 premier institutions of India for establishing Supercomputing Infrastructure with Assembly and Manufacturing in India. These include IITs, NITs, National Labs, and IISERs. Some of these have already been installed. The Phase-II installation is expected to be completed by April 2021.

Work on Phase-III will start in late 2021 and will include three systems of 3 PF each and one system of 20PF as a national facility

The above details would help candidates preparing for the UPSC Exam