

National Anveshika Experimental Skill Test

A unique test embodying the principles of NEP

National Anveshika Experimental Skill Test is a unique competition in which thousands of school and college students participate and the evaluation is based on their skills to perform physics experiments. The test is conducted every year by National Anveshika Network of India (NANI), IAPT under the guidance of Padmashri Dr H. C Verma, the renowned professor of physics from IIT, Kanpur. The test is open to school students of grades IX to XII and for the college students pursuing pure sciences at the graduation and post-graduation level. There is no fee at any stage.

The various rounds of NAEST 2022:

The First round, *The Screening round*, will be conducted between 22nd July to 28th July 2022. It is a video based round which shortlists students based on their keen observational and analytical skills. The videos are of maximum 1 minute duration and depict interesting situations around us. The questions are multiple choice questions with one or more correct option.

The second round, *The Prelims Round*, is scheduled from 11th August to 31st August 2022. This is an experiment-based round for students short-listed from the first round from a given region. In this round the students perform innovative experiments for which partial guidelines are provided. Critical and creative thinking is encouraged with special credit for exploring beyond what is asked.

The third and fourth rounds are Semi-finals & Finals to be conducted in October 2022 at Shiksha Sopan, Kanpur. Students selected from different regions based on their performance in the second round, enter the semi-finals where they appear for more challenging innovative experiments. It is ensured that each student completes the experiment, with or without support in form of hint providing questions. Around ten students selected from the semi-finals appear for the finals. Both the rounds assess the ability of students to learn in new circumstances. Finally, based on their final performance, three national winners are declared who are felicitated at the annual convention of IAPT.

There is no limit on the number of participants from an organization. The students are required to register individually at <https://naest.shiksha-sopan.org/> . An early registration on the website is of great advantage for them. From time-to-time videos based on some concept of physics and related questions will be posted on the website. They can view the videos and post their queries which are answered by Dr H C Verma and his team of instructors. This gives them an opportunity to greatly enhance their understanding of the subject. They can then appear for the online video-based screening round. If selected for the next round - The prelims round - they are required to perform three innovative experiments at home with materials available at home; the experiments with guidelines are emailed to them directly on their registered email ID. Based on evaluation of their reports submitted with photos and videos, selected students from this round enter the Semi-final and Final rounds at Kanpur.

New milestones created by online mode

The online mode of NAEST evolved as a response to unprecedented COVID situation in which the traditional school/college labs were closed for almost 2 years. The supposed disadvantage of non-availability of labs was turned on its head into the biggest possible opportunity. It removed the restrictions imposed by a traditional lab where given equipment limits the abilities of a student. Hundreds of students could perform experiments at home without any sophisticated equipment, without any prior infrastructure and with joy and excitement – A big milestone.

There is a common perception among physics educators that serious experimental work can only be performed with standardized equipment available in labs - a myth totally debunked by NAEST.

Student after student expressed excitement, deep appreciation, gratitude and wonder at how in-depth experimentation is possible to carry out with simple things and at home. Without exception, they expressed excitement at doing experiments whose procedure and result was not known. The boredom of predictability was for the first time removed from a physics experiment!

Every home became a lab, a thrilling lab, where a student had full freedom to explore and create his own set up and procedure to solve a challenge! For the first time, a process was set up to test how well a student can think in a new situation, not how well a student can follow guided instructions and regurgitate what is already known.

NEAST experiments set the student free from constraints of learning only what is taught and learning only when taught; they enabled a student to learn, unlearn and relearn at his will and choice, to go beyond and devise his/her own solution to a problem.

The uniqueness of each child was evaluated, acknowledged, and rewarded without any disadvantage of prior content knowledge – another milestone to celebrate.

The test indeed is a test of ability to think imaginatively, ability to solve problems and not of content knowledge and recall. This is well established by the fact that among the 10 toppers every year there are students from grades 9, 10, 11, 12, B.Sc. and M.Sc. – all were given the same experiments to perform!

Assessment that promotes learning and development

The whole exercise is geared towards self-learning and growth throughout the period of testing. The students have the freedom to consult books, internet, parents & teachers to gain knowledge of the content area and then explore solutions.

A call for action

There is a deep appreciation all around and a realization of the huge possibility online mode of NAEST has thrown up – serious investigatory, experimental physics is possible even at home, even in times of COVID.

This also offers the flexibility and options NEP 2020 envisions to offer to the learners.

Through this document we appeal to you to take note of this pathbreaking test. We request you to take all possible initiatives at your end to ensure maximum participation of students in this unique competition.