Report on IAPT JSO Vidyavardhaka Sangha Centre and Indian Participation in IJSO 2023

Introduction

The IAPT Junior Science Olympiad (JSO) Vidyavardhaka Sangha Centre commenced operations in September 2023, following the signing of a Memorandum of Understanding (MOU) between the Indian Association of Physics Teachers (IAPT) and Vidyavardhaka Sangha. Vidyavardhaka Sangha is a 67-year-old educational organization based in Bangalore, known for its longstanding contribution to education. The establishment of this center marks a significant milestone for science education and talent development in India. The center's very first initiative was to host a Resource Generation Camp (RGC) for setting the Indian National Junior Science Olympiad (INJSO) 2024 question paper.

Resource Generation Camps (RGCs)

1. First RGC (29th September – 2nd October 2023)

Held at the Talent Development Centre (TDC), IISc, Challakere, the first RGC was dedicated to generating resources and creating the question paper for the INJSO 2024. This camp marked the formal initiation of activities at the Vidyavardhaka Sangha Centre.

2. Second RGC (22nd – 24th December 2023)

The second RGC focused on developing theory and experimental questions for the Orientation Cum Selection Camp (OCSC), which is crucial for selecting the Indian team for the International Junior Science Olympiad (IJSO).

3. Third RGC (8th – 10th March 2024)

This camp finalized the question papers for the OCSC, further ensuring the high quality of the material used in the selection process. Additionally, an exposure camp was held from 22nd to 24th March 2024, where 28 participants from across the country joined for an immersive learning experience.

Pre-Departure Camp and Indian Participation in IJSO 2023, Bangkok, Thailand

In preparation for the International Junior Science Olympiad (IJSO) 2023, a pre-departure camp was held from 27th to 29th November 2023, for the Indian team. The team participated in the IJSO held in Bangkok, Thailand, from 1st to 9th December 2023. India achieved remarkable success, winning five Gold medals and one Silver medal:

- Soham Pednekar, Mumbai – GOLD
- Kanishk Jain, Mumbai – GOLD (Prize for highest marks in Theory)
- Mahroof Khan, Rajasthan – GOLD
- Divya Agrawal, Madhya Pradesh – GOLD
- Rudra Pethani, Gujarat – GOLD
- Archit Bhalodiya, Gujarat – SILVER

The Indian team was accompanied by three leaders and one scientific observer:

- Prof. Devesh Tyagi (D.A.V. College, Muzaffarnagar, UP)
- Prof. Rajeev Chikate (Retd. Professor, A. Garware College, Pune)
- Prof. Nikhil Palande (Shri Mathuradas Mohota College, Nagpur)
- Prof. Vinayak Katdare (Retd., Ruparel College, Mumbai)

This year’s IJSO saw the participation of around 300 students from 54 countries. India's stellar performance is a testament to the dedication of the students, the mentorship provided by their teachers, and the support from the Homi Bhabha Centre for Science Education (HBCSE).

OCSC and Team Selection for IJSO 2024

The **Orientation Cum Selection Camp (OCSC)** for the Junior Science Olympiad was conducted from **May 7th to May 20th, 2024**, at the TDC, IISc, Challakere, Karnataka. This was the first time the OCSC for Junior Science Olympiad was conducted outside of HBCSE, with substantial support and guidance from HBCSE. The camp involved 36 students, selected from approximately **40,000 participants** in the National Standard Examination in Junior Science (NSEJS). Following NSEJS, the top 337 students competed in the Indian National Junior Science Olympiad (INJSO), and the top 36 were chosen for OCSC.

OCSC Activities

The camp was designed to thoroughly train and test the students through five key components:

1. Orientation, Training, and Practice Tests:

Students were trained in subjects beyond the standard Indian high school curriculum, with a special focus on relevant topics in **Physics, Chemistry,** and **Biology.**

2. Theoretical and MCQ Tests:

Based on questions prepared by experts during the RGCs, students underwent multiple theoretical and MCQ tests. The tests covered advanced topics such as thermal physics, chemical bonding, and protein engineering.

3. Experimental Tests:

Students conducted both group and individual experiments in Physics, Chemistry, and Biology, testing their practical knowledge and lab skills.

4. Grading and Arbitration:

All tests were graded by two resource persons, with cross-verification by moderators. The final results were reviewed during arbitration sessions, allowing students to clarify their grades.

5. Enrichment Lectures and Activities:

To broaden the students' scientific perspectives, a series of lectures were delivered by experts in various fields, including drug design and quantum dots. Additionally, students participated in an ecology field trip and a quiz competition.

Team Selection for IJSO 2024, Romania

After rigorous testing and evaluation, six students were selected to represent India at the International Junior Science Olympiad (IJSO) 2024 in Romania. The selected team is:

- Pranit Mathur, Gujarat
- Harshit Singla, Punjab
- Manas Goel, Haryana
- Jinansh Jignesh Shah, Maharashtra
- Bhavyaa Gunwal, Haryana
- Shwetank Agrawal, Haryana

The Indian delegation leaders and scientific observers for IJSO 2024 will be:

- Dr. B.S. Achutha (Leader, Physics)

- Dr. Rekha S (Leader, Chemistry)

- Dr. Srinath T.L. (Leader, Biology)

- Prof. Rekha Ghorpade (Scientific Observer)

Valedictory Program and Acknowledgments

The OCSC concluded with a valedictory ceremony on May 20th, 2024, at Parthasarathi Hall, VVS College, Rajajinagar, Bangalore. The event was graced by several esteemed guests, including former ISRO Chair Mr. Kiran Kumar, TDC Convenor Prof. Subba Reddy, and IAPT President Prof. Ahluwalia. During the ceremony, all 36 participants were awarded gold medals, and the selected team for IJSO 2024 was officially announced.

We extend our heartfelt thanks to the resource persons, TDC staff, HBCSE, IAPT members, Vidyavardhaka Sangha, and the Government of India's funding agencies for their unwavering support. Special appreciation goes to the teachers, mentors, and the National Steering Committee for their hard work in preparing the students for the international competition.

We congratulate the selected students and wish them the very best in their upcoming journey to IJSO 2024 in Romania.