



Indian Association of Physics Teachers

(Registered under Section XXI of Societies Act. 1860, Reg. No. K-1448)

ASIAN PHYSICS OLYMPIAD CELL

COORDINATOR:
Ravi S. Bhattacharjee

NATIONAL OLYMPIAD PROGRAMME

FOR

ASIAN PHYSICS OLYMPIAD

GUIDELINES

(2019-2020)

(Effective from the Olympiad year (2019-2020) leading to participation of Indian teams in Asian Physics Olympiad (APhO) 2020.)

Preamble: A broad 4-stage procedure has been operational for many years for implementing the Asian Physics Olympiad programme. There were no formal statutes or guidelines made by the National Steering Committee so far for the purpose. Approval, shall be sought from The National Steering Committee for Science and Astronomy Olympiads, for the following guidelines for the Olympiad year (2019-2020) leading to Asian Physics Olympiad, 2020.

- 0.1 The Asian Physics Olympiad Programme will follow a **four-stage** process. These stages are:
 - I. National Standard Examinations in physics (NSEP).
 - II. Indian National Olympiads in physics (INPhO).
 - III. Pre - Departure Training camps (PDTs) in physics.
 - IV. Participation in the Asian Physics Olympiads (APhO).
- 0.2 Indian Association of Physics Teachers (IAPT) will be responsible for conducting the first, third and fourth stage, while second stage of the programme will be carried out by Homi Bhabha Centre for Science Education (Tata Institute of Fundamental Research) - HBCSE (TIFR).
- 0.3 There will be a modest fee charged by IAPT for the first stage examinations. There will be no fees for the subsequent stages. No TA/DA is admissible for NSEs. For Stage II, outstation candidates will be provided TA/DA as per the norms of the programme. Free boarding and accommodation and traveling allowance as per norms will be provided to students selected for orientation and selection camps of Stages III and IV. The expenditure for stages II to IV including international travel of official Indian teams and related expenditure will be borne through budgetary provisions passed by the National Steering Committee (NSC). Local hospitality is provided by



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the host country of the International Olympiad. All financial assistance mentioned above is subject to the approval of NSC budgetary provisions by the Govt. of India.

- 0.4 The APhO activity of IAPT is co-ordinated by IAPT-APhO cell appointed by Executive Committee (EC) of IAPT in its meeting on 4th and 5th Jan 2005. This IAPT-APhO cell currently consists of a 11member committee consisting of 1) Co-ordinator IAPT – APhO Cell 2) President IAPT 3) General Secretary IAPT 4) Chief Co-ordinator IAPT Exam 5) National Co-ordinator Science Olympiad 6) Six IAPT life members.

Out of them 2 to 5 are ex officio. This cell takes appropriate decision for the smooth conduct of APhO in India. The EC of IAPT is empowered to reconstitute the APhO cell and will inform the NSC of any changes in the composition.

Stage I

National Standard Examination in Physics (NSEP)

- 1.1 The first stage of the selection process is the National Standard Examination in Physics (NSEP). It will be organized and conducted by the Indian Association of Physics Teachers (IAPT). NSC has assigned this task to IAPT in view of its wide network and demonstrated capability.
- 1.2 The eligibility criteria (age, class, stream, nationality, etc.) for appearing in NSEP will be announced in advance. The criteria will be in consonance with the APhO rules and may have additional restrictions to suit Indian conditions as perceived by the NSC. The eligibility criteria for NSEP for the current Olympiad year is as already been announced and displayed in the IAPT website.
- It will be the responsibility of the student to ensure that the above eligibility criteria are satisfied. In case it is found at any later stage of the programme that a student does not meet the eligibility criteria, he or she may be disqualified from the programme.
- 1.3 IAPT will announce the dates of the NSEP, enrolment procedure and related matters at least 1 month in advance of the last date of enrolment and put up the list of NSEP Centres on its website.
- 1.4 The syllabus for NSEP will be broadly equivalent to the senior secondary level (up to and including Class XII) of CBSE in these subjects. This is only a rough guideline and there is no detailed syllabus given for NSEP.



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1.5 The total number of students who will qualify to appear for the second stage INPhO 2020 will be based on the first stage NSEP 2019 and the following scheme is adopted:

(a) **Eligibility Clause:** To be eligible for the Stage II INO exam leading to the International Olympiad, a candidate must secure a score equal to or greater than a Minimum Admissible Score (MAS). The MAS for a given subject will be 50% of the average of the top ten scores in that subject rounded off to the nearest lower integer. This is called Maximum Score

(b) **Merit Index Clause:** There will be a high score called the Merit Index (MI) associated with each subject in Olympiads. The MI in a subject is defined as 80% of the Maximum Score. All students with a score greater than merit index MI for the subject will automatically qualify for INO Stage II examination in that subject. For example, if the average of top ten scores in a certain subject is 92, then 80% of this is 73.6. Then the MI in that subject will be 73. All candidates with a score equal to or above 73 in that subject will automatically qualify for INO stage II.

(c) **Proportional Representation Clause:** Students from all States and UTs need to be encouraged to appear for the first stage examination and a nationwide representation for INO Stage II is desirable. The quota for each State/UT used in National Talent Search Examination (NTSE) 2013-14, a nationwide competitive examination will be used as the baseline for calculating the number of students qualifying for Stage II INO in every subject from centres in that State or UT. Suppose the NTSE quota is S for a State, and the total for all States and UTs is T , then the total number of students to be selected to INO Stage II from that State would be S/T times 300, rounded off to the nearest higher integer. This number will include those selected on the basis of the Merit Index. In the event of tie at the last position in the list, all students with same marks at this position will qualify to appear for the INO Stage II examination. The selected students must nevertheless satisfy the eligibility clause. The number to be selected from all the centres in each State or UT will be displayed on the IAPT and HBCSE websites. (www.iapt.org.in; <http://olympiads.hbcse.tifr.res.in>)

(d) **Minimum Representation Clause:** Notwithstanding the proportional representation clause the number of students selected for INO from each State and UT must be at least one, provided that the eligibility clause is satisfied.

The above criteria are illustrated with the following examples:

i. Let the quota on the basis of the Proportional Representation Clause (c) for a State S_1 be 20. Suppose the number of students satisfying the Merit Index Clause (b) in a subject is 10. These 10 students will qualify for the second stage INO exam in the given subject and an additional 10 students from the State S_1 in the given subject will be selected merit-wise, provided they satisfy the Eligibility Clause (a).

ii. Let the quota on the basis of the Proportional Representation Clause (c) for a State S_1 be 20. Suppose the number of students satisfying the Merit Index Clause (b) in a subject is 30. In this case, all 30 students will qualify for the second stage INO exam in the given subject, and there will be no further selection from the State S_1 .



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- 1.6 Soon after NSEP, IAPT will provide to the National Coordinator (Science Olympiads) a copy of question paper and solutions. The same will be put up on the IAPT website. The National Co-ordinator (Science Olympiads) will send the same to all members of NSC in due course.
- 1.7 The IAPT will finalize by December 31st of the year the lists of students (as per para 1.5) with addresses who qualify to appear for INPhO and submit the same to the National Coordinator (Science Olympiads) and Chair, NSC. If available, the telephone numbers and the email ids may also be provided. The lists of selected students will be put up on the IAPT website immediately after finalization.
- 1.8 On receiving the above lists from IAPT, the National Coordinator (Science Olympiads) will send the intimation by speed post/E mail/other suitable fast communication to all the students who qualify for INPhO. These students will be allowed to choose their INPhO centre by logging in with password provided. Simultaneously, HBCSE will put up the center wise list of these students on its website. Students will be advised to look at these lists a week after the IAPT provides the lists. HBCSE will not be responsible for postal delays or delays due to incomplete/illegible/incorrect addresses provided by students, or any other reasons beyond HBCSE's control. HBCSE may change the procedure from time to time for the sake of faster communication with the students qualified for INPhO.
- 1.9 IAPT will issue an NSEP certificate of merit to each student who qualifies to appear for INPhO. In addition, it may issue/award any other certificates in accordance with its norms and procedures.

Stage II



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Indian National Physics Olympiad (INPhO)

- 2.1 The Indian National Physics Olympiad Examinations (INPhO) will be organized by the HBCSE. The National Coordinator (Science Olympiads) will designate an Academic Coordinator for INPhO, usually drawn from the respective Olympiad cell of HBCSE. The Academic Coordinator will coordinate all aspects of the INPhO.
- 2.2 Only the students selected by IAPT in physics will qualify to appear for INPhO. Candidates who have represented India in the APhO need not appear for the first stage NSEP. They may be allowed on written request to the National Co-ordinator (Science Olympiads), to directly appear for the second stage Indian National Physics Olympiad (INPhO) examination provided they satisfy other eligibility criteria such as age, pre-college status, etc. There will be no other criteria or provisions for qualifying to appear for INPhO. (Also see 5.1)
- 2.3 Syllabus

The syllabus for INPhO will be broadly equivalent to NSEP.

These are only broad guidelines. Questions and problems in INPhO will be usually non-conventional and of high difficulty level, comparable to APhO. Appeals against INPhO questions being 'out of syllabus' will not be entertained, as Olympiads are meant to be challenging tests.

The dates, times and durations of the INPhO and the INPhO centres will be announced well in advance. The tentative schedule of INPhO for the current Olympiad year is given in the Appendix to Annex.1.
- 2.4 The INPhO will be conducted at several centers (about 20) across the nation to ensure adequate coverage of all regions in India. The INOs in various subjects will be held at different days/times so that a student who has qualified to appear in more than one subject can do so.
- 2.5 The National Coordinator (Science Olympiads) will constitute a Paper Setting Board (PS) and Paper Grading Board (PG) for INPhO based on the recommendations of Olympiad cell and inputs, if any, from National Steering Committee (NSC). There may be overlap between PS and PG Boards.
- 2.6 There will be no chairperson of the PS and PG Boards. The Academic Coordinator for INPhO will normally act as the coordinator of the Board in that subject.
- 2.7 The Board may induct additional members, subject to the approval by the National Coordinator (Science Olympiads), to widen their scope, standard and expertise in the subject.



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- 2.8 The primary function of the PS Board is to design a test of high quality for INPhO and provide solutions. The Board will submit a copy of question paper and solutions to the National Coordinator (Science Olympiads) immediately after INPhO.
- 2.9 The primary function of the PG Board is to provide to the National Coordinator (Science Olympiads) the mark list of students who have appeared in INPhO and a copy of question paper and solutions.
- 2.10 On receiving results from the PG Board in a subject, the National Coordinator (Science Olympiads) will send by speed post/electronically individual Performance Card to each of the students who have appeared for the INPhO, giving his/her total marks. At the same time, the question paper and solutions for INPhO will be put up on the HBCSE website.
- 2.11 Students may apply for revaluation of their answer scripts. Such application must be sent by speed post/registered post and must reach the National Coordinator's (Science Olympiads) office within a stipulated time from the mailing of the performance card and will be accompanied by a suitable fee and the performance card. The stipulated time and fee will be indicated on the performance card. Application via e-mail or telephone will not be entertained. HBCSE will not be responsible for postal delays or delays due to incomplete/illegible/incorrect addresses provided by students, or any other reasons beyond HBCSE's control. No extension of pre-set deadline for request for revaluation will be possible, since the Olympiad programme runs on a very tight time schedule.
- 2.12 The National Coordinator (Science Olympiads) will convene a meeting of the PG Board to consider these applications. The Olympiad programme works on a tight time schedule. It is possible that all members of PG Board may not be in a position to attend the re-grading meeting. The decision of this convened PG Board will be final.
- 2.13 A revised performance card with post-revaluation score will be sent to the candidate who has applied. The post-revaluation score of the student will be considered as final and definitive and will be used in preparing the merit list.
- 2.14 It is made clear that revaluation is a facility being given to students and is not by way of a right. This facility can be withdrawn at any time either fully or partially with or without any advance notice.
- 2.15 Based on the performance of the students in INPhO, a merit list will be prepared. HBCSE makes available to Coordinator IAPT – APhO Cell a merit list of top fifty students who have qualified in the INPhO and have opted to represent India at the APhO (an option exercised when students write their INPhO exam). This list shall be made available immediately after the mailing of the performance cards.



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2.16 The Coordinator IAPT – APhO Cell orders the list with 40% weightage to NSEP and 60% weightage to INPhO. From this merit list students are approached. A maximum of eight students shall represent India at the APhO 2020. (The last student in the merit list should have at least 50% of the top score in INPhO.)

2.16 a) Candidates who have been exempted from NSEP vide para 2.2 and have opted to represent India at the APhO shall be considered if they are in the merit list after 40% weightage to NSEP score scaled to the basis of the average of the top 10 scores of the year of his/her appearance in NSEP (past year and the average of the top 10 scores of the current year e.g suppose a candidate gets 25 and the maximum score that year is 50. In the current year suppose the maximum score is 60, the score should be scaled to this year i.e $25/50 \times 60 = 30$. 40% of 30 shall be taken.) and 60% weightage to INPhO of the current year.
of the current year.

Stage III

Pre - Departure Training Camps (PDTs) for APhO

- 3.1 The selected Indian team will go through a round of training at location determined by IAPT before participation in the APhO. In this camp the Leaders and Observer(s) who will accompany the selected students and some additional resource persons will provide them guidance and counseling before their departure for the international event.
- 3.2 The choice of leaders and observer(s) will be recommended by the Coordinator in consultation with the IAPT-APhO cell members.
- 3.3 In exceptional circumstances, on the written recommendation of the leaders/observer(s)/resource persons, the Coordinator may recommend the discontinuation of a student member of the Indian team in case he/she is non-cooperative and/or creates disciplinary problems, which can seriously affect the morale of the rest of the team. The recommendation to be made in writing giving reasons in detail will be put up to Chair, NSC for approval. NSC will be informed of the decision in the subsequent meeting.



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Stage IV

Participation in the APhO

- 4.1 The two Leaders and Observer(s) who will accompany the students will provide them guidance and counseling throughout the Asian Physics Olympiad.
- 4.2 The two leaders will act as jury members on behalf of the country, partake in deliberations on the competitive tests as well as on policy matters in the international board/jury meeting, and participate in arbitration sessions on behalf of Indian students.

Miscellaneous

- 5.1 There are three Olympiads under the purview of NSC but for which HBCSE is not the Nodal Agency. These are the Asian Physics Olympiad (APhO), the International Astronomy Olympiad – Junior (IAO – Jr) and the International Earth Science Olympiad (IESO).
 - (a) Candidates who have represented India in the Asian Physics Olympiad (APhO) need not appear for the first stage NSEP examination. They may be allowed on written request to the National Co-ordinator (Science Olympiads), to directly appear for the second stage Indian National Physics Olympiad (INPhO) examination provided they satisfy other eligibility criteria such as age, pre-college status, etc.
 - (b) The merit list of Stage II (INO) may be shared with these Olympiads for purposes of selection to their 3rd stage and for no other purpose.
 - (c) Candidate(s) selected to be a member of the Indian Team in APhO will be permitted to attend a non-overlapping camp in another subject under the purview of the NSC.
- 5.2 The Olympiad programme works on a very tight time schedule. In the event that an important decision/measure has to be taken and implemented urgently the National Coordinator will inform the Chair, NSC and obtain his/her approval. The NSC will be informed of these decisions/measures in the subsequent meeting.
- 5.3 In all other matters not covered above the guiding principle will be the integrity of the enterprise, fairness to students and transparency of the process in the interest of the country.



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- 5.4 The guidelines will be reviewed by NSC at regular intervals. In case the NSC does not meet in time the general guidelines given above will continue by default for the subsequent year.
- 5.5 The courts at Delhi alone shall have the jurisdiction to settle and decide all matters and disputes related to the above-mentioned Olympiad programme and Examination from Indian National Physics Olympiad (INPhO) and onwards as Delhi is the Nodal Centre for this programme.