

# **ISIJ Rules V5/2022**

## **1. Preambles**

**1.1. These Rules cover Competition Procedures. This draft may be revised to address omissions or inconsistencies, but will not change substantially.**

1.2. The terminology used in this document is from IOI Regulations.

1.3. Delegation Leaders have the responsibility of ensuring that all members of their delegation fully understand these rules and abide by them.

## **2. Competition Schedule**

2.1. There will be six competition days. The Cup rounds include: Training tour for 4 h. and 3 tasks (qualification of the participant confirming the distribution into groups B (basic) and A (advanced for participants over 15 years old)), Mathematical blitz round of mathematical computer science problems (2 h.), Coder-tour for programming in C++ (3-4-hour), Marathon tour (on 3 tasks for 4 hours), a Estafette round (1hour on one task, different for each team member) and a Robot-tour on an applied task.

## **3. Tasks**

3.1. Each contestant will receive the English or Russian text of the tasks on each contest day.

3.2. In addition, each contestant will have online access to the English text of tasks and in electronic format (PDF).

3.3. The number and kind of files that the contestant must submit as a solution (for example, "source code of the program in a text file") will be specified in the task statement.

3.4. Direct access to any file, excluding standard input and standard output, is forbidden. In some tasks reading from file and writing in file this could be not necessary at all because data will be exchanged through the interfaces specified in the task statement

3.5. Each task will be checked on set of single test cases or/and groups of test cases with specific properties (subtasks), each worth a portion of the total points. Points for subtask will be assigned only when all test cases of the subtask are solved.

3.6. Time limit for a single test case and memory limit will be specified for every task. When few tests are grouped in a subtask then time limit is applied for each test case in the group separately. The memory limit is on the overall memory usage including executable code size, stack, etc. In general, time and memory limits will be generous.

3.7. All necessary files regarding the statement of a task as well as electronic documentation or reference manuals will be provided through the grading system.

## **4. Practice Session**

4.1. There will be online Practice Session prior to the first competition day, to familiarize all contestants with the grading system. The trial tour without time limit.

4.2. Contestants may bring printed solutions to the practice tasks, on paper only, during the Practice Session.

## **5. Competition Equipment and Environment**

5.1. Participants can use computers with Windows or Linux operating systems. In each operating system, the organizers install the necessary programming tools in C++, such as Code::Blocks, CLion, and others available to the organizers.

5.2. All tours are conducted in Yandex. Context and use (in the case of programming tasks) the C++ language. The Yandex assessment system is provided by the ISIJ company Yandex

5.3. In case of force majeure (technical failures) during the competition, the team coach must contact the jury to consider the possibility of extending the tour time.

## **.6. Supplies**

6.1. In the competition room, working paper and writing tools will be provided. On the competition days, contestants may not bring anything into the competition rooms, except for the following items under the provision that they cannot transmit or store any data in electronic or printed format (other than the purpose for which they have been designed):

- clothing,
- reasonable jewelry,
- keyboards (without wireless and/or calculation functions),
- small mascots,
- English dictionaries.

6.2. If a contestant wants to bring a keyboard, small mascots or English dictionaries to the competition, these must be submitted to the technical staff during the practice competition day. Any of these will be checked and, if cleared, will be given to the contestant in the first competition day. After the first competition day, the contestant must leave these items on his or her workstation if he or she wants to use them during the next competition day. Once again these will be checked and, if cleared, will be given to the contestant in the next competition day. After the last competition day, the contestant must take all of these items with him or her.

6.3. Any attempt to bring any other item into the competition room will be considered cheating. In particular, during competition rounds it is strictly prohibited to bring:

- any computing equipment (e.g. calculators, laptops, tablets, smart watches, activity tracker, and not presented in advance keyboards),
- any books, manuals, written or printed materials,
- any data storage medium (e.g., CD-ROMs, USB drives, flash cards, micro-drives),
- any communication devices (e.g., mobile phones, radios of any sort).

6.4. Contestants comply with the ISIJ Participant Code and perform tasks independently, excluding external consultants. The jury reserves the right to check decisions for anti-plagiarism.

6.5. Online participants can work at the workplace at home or in the classroom under the supervision of a coach, the jury has the right to request the inclusion of video surveillance.

## **7. Competition and Grading**

7.1. All contestants must wear their ID badges during the competition, use the personal Login and password assigned by the jury to access the contests.

7.2. Each contestant will have a pre-assigned workstation. The workstations have network access to the grading system, as well as facilities for printing.

7.3. Contestants should be in their seats at least 5 minutes prior to the start of the competition. Contestants must find their assigned computer, sit down, and wait for the competition to begin without touching anything (such as keyboards, mice, pen or paper).

7.4. Contestants must submit their solutions for tasks by using the grading system.

7.5. During the competition, contestants may submit written questions concerning any ambiguities or items needing clarification in the competition tasks. Questions and comments must be submitted through the grading system or on the provided Clarification Request Forms, expressed either in the contestant's native language or in

English. If required, delegation leaders will translate their contestants' questions into English after they are submitted and before they are sent to the Scientific Committee. The Scientific Committee will respond to every question submitted by the contestants during the competition. Since this might take some time, contestants should continue working while waiting for the answer to their questions.

7.6. Contestants should phrase their questions so that a yes/no answer will be meaningful.

7.7. Questions will be answered with one of the following without any translation (so the contestant have to know their meaning):

- "YES"
- "NO"
- "ANSWERED IN TASK DESCRIPTION (EXPLICITLY OR IMPLICITLY)" - The task description contains sufficient information. The contestant should read it again carefully.
- "INVALID QUESTION" - The question is most likely not phrased so that a yes/no answer would be meaningful. The contestant is encouraged to rephrase the question.
- "NO COMMENT" - The contestant is asking for information that the Scientific Committee cannot give

7.8. There is no restriction on the number of times a program may be edited, compiled, and run on the workstation.

7.9. Grading and evaluation take place on the grading system, which provides a same execution environment to that of the contestant workstation. Grading workstation will have the same hardware and software configuration as contestants' workstations (without programs for monitoring and the grading system)

7.10. To avoid overloading the grading system, there are two restrictions on the number of submissions:

- Contestants may submit a solution to each task at most once per 30 seconds.
- Contestants may submit at most 100 solutions for each task for each contest day.

7.11. Each submitted source program must be written in C++ ONLY, it must be smaller than 256 KB, and the evaluation server must be able to compile it in less than 10 seconds and at most 256 MB of memory.

7.12. Contestants can use the grading system to view the status of their submissions and get a short report on the compilation errors of their source code.

7.13. Full feedback will be available for some of some tasks, indicating whether each single test case or subtask has been solved. For the other tasks a partial feedback (for at least one test case) will be given.

7.14. The score for each submit will be the sum of scores of solved test cases and/or groups of test cases. The final score for a task will be the maximum score of a submit across all submissions.

7.15. If a test case, which is chosen for feedback, is not solved, then the grading system will give the feedback, which will be one of the following (feedback is not translated and each contestant should understand its meaning):

- OK – submission is accepted,
- WA - Wrong answer,
- CE - Compilation error,
- RE - Run-time error,
- TL - Time-limit exceeded,
- ML - Memory limit exceeded.

Inputs are ordered the same way in all the runs. No information on the actual data, the output produced by the contestant solution or any other execution details will be given to the contestant.

7.16. It should be noted that the score reported in the full feedback is only provisional. There are two ways how this score may change after it has been reported to the contestant:

- Due to a successful appeal after the contest.
- In some cases the contestants' submissions may be re-evaluated. This reevaluation may sometimes lead to a different total score. (E.g., if a solution behaves nondeterministically or runs very close to the time or memory limit.) In such cases, the final score for the submission is the score for its latest reevaluation. This change in scoring cannot be appealed. Note that the final score for each task is still the maximum score over all submissions.

7.17. Contestants may ask the support staff for assistance at any time. The staff members will not answer questions about the competition tasks, but will deliver Clarification Request Forms and printouts, help locate toilets and refreshments, and assist with computer and network problems. The only manner in which contestants are allowed to access the network is via the grading system: even running a single "ping" command is strictly prohibited and may lead to disqualification.

7.18. Contestants should never attempt to fix or debug or even check computer or network problems themselves; instead, they should ask for assistance.

7.19. Three warnings will be given at 30 minutes, 15 minutes, and 5 minute before the end of the competition. Each warning will be given by an audible signal. The end of the competition will be announced both verbally and by an audible signal. At the announcement ending the competition, contestants must immediately stop working and wait at their desks without touching the computers or anything on their desks. An additional announcement will be made instructing them to leave their tables and exit the competition room.

7.20. At the end of the first competition, any previously submitted items a contestant would like to use during the next competition should be put in the provided plastic bag. All other items should be taken out of the competition hall, including printouts. At the end of the second competition, contestants should remove all personal items including their mascots and dictionaries or any other previously submitted item; nothing should be left behind.

## **8. Cheating**

8.1. Contestants must use only the workstation and account assigned to them on each competition day. In particular, contestants must not:

- attempt to submit illegal programs as discussed above, nor try to tamper with or compromise the grading system;
- attempt to gain access to root or any account other than the one assigned to them;
- attempt to store information in any part of the file system other than specified by Contest Environment;
- touch any workstation other than the one assigned to them;
- attempt to access any machine on the network or the Internet, other than to submit tasks and view submission results through the grading system;
- attempt to alter the boot sequence of any workstation;
- communicate with other people during the competition, other than the staff and/or Scientific Committee members.

All of the above actions are considered cheating and may result in disqualification.

## **9. Appeal Process**

9.1. Provisional grades, based on tests, are available immediately to competitors. In the event of an error with the test data, the Scientific Committee will attempt to, but is not obligated to follow the following process:

- Every attempt will be made to fix test data and regrade all solutions as quickly as possible.
  - Additional test data may be added only when the grading data does not meet the intention of the Scientific Committee from before the contest.
  - Late detections of issues, especially during the last 2 hours of the contest, may be grounds for extending the length of the contest.
- 9.2. The hidden test data will be made available electronically in the competition area during the scheduled time after second competition day. Contestants and team leaders may use the contestant's workstations to verify that the grades are assessed correctly.
- 9.3. A Team Leader may file an appeal by completing an Appeal Form, and submitting it to the Scientific Committee at least 30 minutes prior to the final GA meeting of that competition day. The GA will be informed of where Appeal Forms can be collected, and where they can submit them to the Scientific Committee. Every appeal will be reviewed by the Scientific Committee and the Team Leader will be notified of the committee's decision. All appeals and their disposition will be summarized at the final GA meeting of that competition day.
- 9.4. In the event that every submission of a task should be re-graded and re-scored as a consequence of an accepted appeal, note that re-scoring may result in a higher or lower score for any contestant. Should anyone's score change after grading results have been published, new results will be published again. Score changes resulting from this are not appealable.

## **10. Online-ISIJ Rules**

Rules of participation in the online summer session of the International School of Informatics for Juniors (ISIJ, School)

The online School shift is held for team members remotely from home or for small groups of participants in their training places on the established dates from July 1 to 11 (from 2020 onwards annually)

10.1 Rules and recommendations for the team coach:

- \* registers the team in the online School shift and organizes the payment of the registration fee for participants
- \* helps participants to register in the School's competition system using the participant's logins and password, sent by the Jury
- \* helps participants to install the necessary resources on their home computer to participate in online tours according to the recommendations of the Scientific Committee
- \* selects the time limits of the tours for the teams of the country according to the table (teams from the country can work only in one time schedule according to Moscow time) and provides daily monitoring of the work of team members according to the selected time schedule of tours and classes
- \* provides prompt solution of problems in case of technical failures on the participant's computer with the Scientific Committee of the School
- \* conducts an interview with the participants on the rules of participation and compliance with the etiquette of the online competition

- \* provides downloading of materials from a special section of the School's website, where the coach is given access
- \* translates materials, if necessary, into the native language of the participants
- \* advises participants on the materials of seminars and task reviews
- \* participates in the School's forum to solve operational issues, including problems that arise during tours
- \* receives diplomas to his address and passes them to the participants.

#### 10.2 Rules for participants:

- each participant is registered in the School's competition system at his e-mail address according to the rules for recording the participant's login established by the Scientific Committee
- \* undertakes to constantly use his email and login for all School tours, for the correct support of the rating table by the School's Scientific Committee
- each participant follows the rules of etiquette of online competitions: guarantees honest work on the tours (does not use materials for writing off decisions, consultations and a mobile phone during the tour, does not post his decisions on the Internet and does not transmit them via e-mail or messengers on the day of each tour), understands that the main thing in the competition is to get personal training experience and show his potential
- \* work on a home computer with an Internet connection or in meeting places in small groups with a trainer
- \* they must install all the resources recommended by the Scientific Committee on their home computer in advance to participate in the competition
- \* use the competition system and the forum on the School's website for operational consultations and questions
- \* solve problematic issues that arise during the tours through operational communication with the team coach
- each participant confirms that he accepts the rules of the ISIJ online ethics of tours
- participates in the analysis of the tasks of the tour, in theoretical seminars through the team coach

#### 10.3 Rules for the Scientific and Technical Committee

- \* ensures registration of participants in the competition system, corrects incorrect logins of participants with the coach during registration
- \* provides the inclusion of online tours according to the time schedule for the western and eastern territories of the countries according to Moscow time
- \* provides prompt coordination when problems are detected (system or Internet failures) during the tours, makes a collective decision with the ISIJ Organizing Committee on the possible extension of the tour time if technical failures are fixed

- \* checks for anti-plagiarism of participants' decisions, in case of fixing plagiarism of decisions, the participant's result for the task is reset to zero
- \* advises coaches and participants on the ISIJ website forum
- posts a table of tour results in a special section of the website for downloading by team coaches
  - all the decisions of the participants are available to them in the system of competitions in the School rounds, the Scientific Committee can send the archive of the decisions of the participants to the coach of the team at his request

#### 10.4 Time schedule of online-tours

In the tour schedule, the time of the event is indicated as Moscow time (Moscow time corresponds to world time +3 hours). It is necessary to use a temporary cluster of your territory. The Western time cluster for the regions of the Russian Federation and countries with Moscow time +1,2,3,4,5 and -1,2,3 (that is, for world time 0, +1,2,3, 4,5,6,7,8). The Eastern time cluster has a different schedule of training tours and corresponds to Moscow Time +6,7,8,9 (according to world time it is +9,10,11,12).

When organizing the schedule of the working day for the participants, the coaches need to use their free time from the tours to consult the participants on the analysis of tasks. The analysis of the tasks is laid out to the coaches in a special section of the School's website for mailing lists to the team after the round.

### 11. ISIJ Cup Rounds (Summer ISIJ)

The cup is an all-around competition and includes at least 5 rounds according to the Order of the School and is held in the summer session of the school from July 1 to 11. The Scientific Committee may include in the set of Cup rounds: theoretical blitz tours (no more than 2), Olympiad programming tours (no more than 2), Robot tour (one) as well as training tours-warm-ups.

11.1 The theoretical Blitz tour as part of the all-around rounds of the School Cup may not include **Mathematical Tour** and a **Coder Tour** and has its own individual award nominations. The mathematical tour lasts 2 hours, includes 12 (for group B) and 15 (for group A) blitz problems on the topic of mathematical informatics and calculation algorithms, each problem has one correct solution. The tour is conducted in the Yandex-Contest system. The coder tour lasts up to 4 hours, includes tasks on programming techniques in the Yandex Contest.

11.2 The project tour as **Robot tour** on the subject of programming in c++ of unmanned devices for various purposes is conducted in teams (result sent to Jury only the captain of team) in an online form using virtual or remote robots, and in full-time using robotic equipment.

11.3 Tours on the topic of Olympiad programming may include two types of tours. The **Estaffete tour** is a cup round with a team competition, held on 6 tasks. Each task is performed as a separate tour for 1 hour. Each team member performs only his task from the 6 tasks of the round so that the team completes all 6 rounds (or according to the number of juniors in the team). The participant is not allowed to enter someone else's tour. In case of fixing a violation, the participant's result is canceled. The scoring for the round is carried out as the average score of the results of all 6 team members (or the number of participants specified in the team). If a team member has solved a problem for a full score in less than 1 hour, the score for the problem is indexed by an increasing coefficient in accordance with the time of solving

the problem. **Marathon tour** is a Cup tour with an individual score. The tour is conducted on 3 tasks in groups A and B and is designed for 4 hours.

11.4. All rounds of the cup have an appeal procedure, which can be submitted to the Scientific Committee of the School only within one hour after the end of the round.