



5th International Iranian Combinatorics Olympiad

October 30–31, 2025

General Information

We are pleased to announce that with the efforts of several combinatorics professors in the country, the **5th Iranian Combinatorics Olympiad (ICO 2025)** will be held **completely free** of charge on Thursday, October 30, and Friday, October 31. The exam will be taken in **teams of up to three members**. The competition will be held **virtually**.

Please read this file carefully before registering so that you are fully familiar with the rules and format of the competition.

Teams

Teams are divided into **four divisions**: Junior, Intermediate, Advanced, and Open. The level of a team is determined by the student in the **highest grade among its members**.

- **Junior Level:** Students in grade 8 or below
- **Intermediate Level:** Students in grade 10 or below
- **Advanced Level:** Students in grade 12 or below
- **Open Level:** No age restrictions

Notes on teams:

- Team members do not need to be from the same school or grade, but all members must be from the same country.
- The problems for Advanced and Open levels are identical; the distinction is only for awarding certifications and standings.

- The Open level has no age limit; university/ college students, teachers and professors are also welcome to participate.

Prizes:

Official certificates will be awarded to the top-performing teams in each division. Please note that the names on the certificates will be exactly as provided at the time of registration, and no modifications will be made.

Format of the Competition:

The exam will have two rounds of short answer and long-answer, Both of these rounds will be held virtually and in the official website of the competition.

First Round: Short-Answer Exam- October 30th, 2025

- Starts at 14:00 (Iran's Standard Time) with 15 short-answer questions and the duration of the exam will be 2 hours.
- Each answer is a single integer. There is no penalties for incorrect answers but in case of a tie, the team with fewer wrong answers ranks higher.
- The score for each correct answer is calculated by the formula $\frac{2m}{m+n}$, where m is the total number of teams and n is the total number of teams that solved the problem correctly.
- At the end of this round, competition ends for Junior and Intermediate levels.
- After finalizing the results the Top 20 teams of the level Open and the top 30 teams of the level Advanced will be able to participate in the second round of the exam.
- Please keep in mind that except the teams from the host country, at most 2 other teams from every nation may reach the second round and the next teams will be replaced by other eligible teams according to the standing.

Second Round: Long-Answer Exam- October 31st, 2025

- Starts at 14:00 (Iran's Standard Time) with 7 long-answer questions and the duration of the exam will be 5 hours.
- There will be no penalties for incorrect solutions.
- Solutions must be fully written and submitted as a single PDF file (typed or handwritten scans are accepted, preferably processed through apps like CamScanner).

- You may submit only once per question. This means that you have only one attempt to solve each question.
- Scoring formula:

$$\text{Score} = g \cdot \left(\frac{20m}{10m + p} + \frac{1}{1500} \right)$$
 - g = raw score given by grader (0–10)
 - m = total number of teams
 - p = total raw scores accumulated for the question by all the teams
 - a = minutes remaining until the end of the exam at the time of submission
- If you don't submit an answer for a problem, you still earn 1 point.
- Because of the formula, scores may increase or decrease during the contest, but only final results are valid.
- Grading is immediate and online. Each solution is graded by two independent graders, and in case of discrepancy, re-evaluation will occur.

Registration:

After reading this document carefully and forming your team, register on the competition website.

Registration by **one team member** is sufficient. The deadline of the registration is Saturday, October 25, 2025.