

# ECOO Programming Contest Rules For Regional and Final Contests

## THE SETUP

### General Contest Information

The contest will consist of four problems to be solved in 3 hours: from 11:00 am to 2:00 pm. All problems will be distributed at the start of the contest. Only one copy of the problem set will be given to each team.

### Team Makeup

A team consists of no more than 4 members, each a full-time student of the same school. Team coaches are responsible for ensuring correct team makeup. Teams may compete with fewer than four members, but this may be a disadvantage to the team. Only two teams are permitted per school. *Exception: Three teams are permitted per school, if one of the teams is an all-female team.*

### Team Work Station

Each team is responsible for bringing and setting up their equipment for their work station, which consists of:

- one computer with a USB port or CD-ROM drive
- one monitor
- sufficient extensions chords
- a power bar
- you may use **non-programmable** hand held calculators and personal language translators (e.g. French to English, Mandarin to English...)
- all other electronic devices are forbidden (e.g. phones, PSPs, ...)

### Languages

The contest can be written in any general purpose programming language. With the exception of basic graphics libraries, only standard programming language installs are allowed. Add-in libraries or other resources are not allowed. Libraries written by the participants are not allowed.

### Books and Resources

The only resource you are allowed to access is the built-in API help for your language (typically what you get when you hit F1.) No written material is allowed at the contest. No printouts or books whatsoever. With the exception of the templates provided by your IDE your solution must be developed from scratch. Teams are not allowed to access or use any pre-written code during the competition.

### Come Early

Teams must arrive at the contest site early to set up their work stations prior to the beginning of the contest. Allow 45-60 minutes for finding the work station site and setting it up.

### Coaches' Participation

Coaches must advise their team about the rules and expectations concerning team conduct during the competition. Coaches must be responsible for team membership, transportation, supervision and team work station (equipment and supplies). Coaches will also be invited to participate as judges.

## **THE PROCEDURE**

### **Contest Procedures**

All teams will be given one copy of the problem set (consisting of 4 problems) to solve during the 3 hour period and a score sheet. When a team feels that it has a correct solution, the team will indicate to the judge that they are ready for scoring by holding up the colour coded problem sheet. If a team has a question about one of the problems they will hold up the colour coded problem sheet and say "question." A judge will come over and answer the question.

A judge will approach and mark the time on the score sheet and hand over a USB drive or CD containing the test data. Team members will insert the media into their machine and optionally copy the input file into their computer.

The team's program will read the test data. After the program has started, there is to be no further student/computer interaction unless specifically directed by the problem to do so. The resulting output will be compared with the judges solution sheet and a score will be assessed by the judge based on the number of correct answers created from the program. If a perfect score is not obtained on the first attempt, the judges are permitted to show the team the correct solution. For more detail, take a look at some of the examples.

### **Executing the program**

The following rules apply in general to all problems. Actual problem descriptions may give more specific directions which would override or add to the following.

Follow the problem description carefully. Judges are using it to judge your program.

All data are to be read from data files. The data files will be called DATA11.txt, DATA21.txt, DATA31.txt, DATA41.txt for the first submission to the respective problem. The data files will be called DATA12.txt, DATA22.txt, DATA32.txt, DATA42.txt for the second submission to the respective problem. Groups must be careful to have the correct data file name in their program. A failed run as a result of an incorrect filename is the only option the judge has. No opportunity to change the file name for a FIRST submission will be given.

Teams are responsible for the creation of their own test data. This test data should satisfy your team that your algorithm (solution) can handle all stated and implied data situations.

Efficiency techniques may be a factor on some problems. Any successful program execution must be fully completed within 30 seconds execution time. Any test cases not completed within those 30 seconds will receive a mark of zero.

Computer technology, being what it is, has a tendency to "crash" at the most inopportune time. Make sure you save and backup your programs while writing them in case of electrical or hardware problems. The team is responsible for any backing up or re-booting that may be required due to equipment failure.

Decisions of the judges are final. All concerns are to be resolved before the announcements of final standings at the end of the contest.

## EXAMPLES

### Contest Scoring

Each problem earns points in three areas.

- **Program Task Points:** Each question is worth 100 points. Most questions have five outputs each worth 20 points, but there can be other scoring schemes for particular questions.
- **Perfect Run Points:** If the first run is perfect, an additional 10 points is added to the score. These points are not granted on a second attempt.
- **Time Points:** 1 point is added for every 5 minutes a problem is handed in early. Time Points are recorded ONLY if at least some Program Task Points are earned.

For the following examples, assume a contest began at 11:00 am

#### Example #1

If a team submits a correct solution to a problem on their FIRST try at 12:17 pm.

For this problem the team earns:

- 100 for a PERFECT solution
- 10 for a PERFECT first run
- 20 for Time Bonus Points
- 130 Total Points (100+10+20)

#### Example #2

If a team submits a solution with 4 of 5 output values being perfect at 12:23 pm.

For this problem the team earns:

- 80 for a partially correct run (4 out of 5)
- 0 There would be zero Perfect solution points
- 19 for 97 minutes of remaining time
- 99 Total Points

#### Example #3

If the team had submitted using the Example #2 above and would like to resubmit the score would be calculated as follows. Assume that on the second set of test data (not the same as the first set of test data) they had only 3 of the 5 output values correct at a time of 1:00 pm.

For this problem the team's previous score for this problem is cancelled (including time points) and the team would earn:

- 60 for a partially correct run (3 out of 5)
- 0 A second run is not perfect
- 12 for 60 minutes of remaining time
- 72 Total Points

#### Example #4

If the team had submitted using the Example #2 above and resubmitted with a Perfect solution at 12:45 pm. For this problem the team's previous score for this problem is cancelled (including time points) and the team would earn:

- 100 for a perfect solution
- 0 A second run is not perfect
- 15 for 75 minutes of remaining time
- 115 Total Points