I. Canadian Young Physicists’ Tournament

The Canadian Young Physicists’ Tournament (CaYPT) is a competition among teams of secondary school students in their ability to solve complicated scientific problems, to present solutions to these problems in a convincing form and to defend them in scientific discussions, called Physics Matches (PM). The CaYPT awards outstanding teams and selects outstanding students to represent Canada in the International Young Physicists’ Tournament (IYPT). There is one national tournament for all students. (There will no longer be any regional tournaments.) The CaYPT will be held on two consecutive Saturdays in March.

II. The Problems of the CaYPT

The problems of the CaYPT are selected from the 17 IYPT problems that are finalized by the International Organizing Committee (IOC). 10 of the 17 problems are used in the CaYPT selection rounds. The CaYPT problems are selected by the Problem Selection Committee is comprised of members of the COC and experienced CaYPT team leaders. The problems are divided into 2 groups of 5 problems. Group 1 and Group 2. The grouping is determined by the Problem Selection Committee. Group 1 will be used in the first CaYPT day and Group 2 will be used on the second CaYPT day. The selection round problems are selected by the CaYPT Organizing Committee (COC). The list of CaYPT selection round problems are made public no later than 2 weeks after the release of the IYPT Reference Kit.

III. The Participants of the CaYPT

1. The Membership of the teams

A team is composed of three to five secondary school students. Secondary school graduates can participate in the CaYPT in the year of their graduation. The participation of university students is not permitted. The COC may allow participation of teams of four or three students. The composition of the team cannot be changed during the tournament. Each team may include at most one member who participated in the previous IYPT (including O-IYPT). There is no limit on the number of IYPT participants from before the previous IYPT (including O-IYPT) in each team. The team is headed by a Captain who is the official representative of the team during the PMs.

2. Team Leaders

The team is accompanied by one or two team leaders. Team leaders should be over the age of 18. They are responsible for the safety and conduct of their accompanying team. It is advised for team leaders to
have backgrounds in physics, engineering or physics education. It is mandatory for qualified team leaders to work as jurors (see section IV). Experienced Team Leader Jurors are invited to join the Problem Selection Committee.

IV. The Jury

1. Composition

The Jury is nominated and organized by the COC. The Jury are composed of team leaders, independent jurors and past IYPT participants. The Jury consists of at least five members, if possible from different schools/teams. Team leaders, may be included in the Jury. The team leaders cannot be members of the Jury in the PM where their teams participate and should not, if possible, grade the same team more than twice.

2. Requirements

Team leader jurors should be a current or past high school physics teacher at a Canadian secondary school.

Independent jurors should have a degree in physics or engineering.

Past IYPT participant jurors should have completed at least 2 years of study towards a physics degree or 3 years of study towards an engineering degree.

3. Juror Rights and Responsibilities

Jurors are responsible for the evaluation of teams during the PMs.

Jurors are responsible for:

a) Declare all affiliations with competing teams and all relevant conflict of interests
b) Attend the juror orientation meeting on competition day or watch juror training videos produced by the COC
c) Grade according to the scoresheet
d) Explain partial grades if his/her score is the highest or lowest in the room

Jurors have the right to:

a) Ask any question related to the problem during the question stage without justification
b) With the agreement of the chair, extend the questioning stage or grading stage as necessary
c) Not comment on his/her grading decision after the PM is completed when asked by team members and team leaders

4. Chair
One of the most experienced jurors takes the role of the chairperson of the PM room. The chairperson’s responsibilities are outlined in the CaYPT Chairperson Responsibility document. The chairperson of each PM room is nominated by the COC and approved by the COC chair.

V. The Agenda of the CaYPT

The CaYPT is carried out in a period determined by the COC (from February to April currently during the month of March). All teams participate in five Selective PMs. Selective PMs are carried out according to a fixed schedule as detailed in the attachment to these Regulations. Numbers are ascribed to teams by draw. Two or Three teams participate in a PM, depending on the total number of teams. In the course of a PM, the members of a team communicate only with each other. Before the beginning of a PM, the Jury and the teams are introduced. The PM is carried out in two (or three) Stages. In each Stage, a team plays one of the two (or three) roles: Reporter, Opponent, (Reviewer). In the subsequent Stages of the PM, the teams change their roles according to the schemes:

<table>
<thead>
<tr>
<th>Three teams PM</th>
<th>Two teams PM</th>
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<tbody>
<tr>
<td>Stages 1</td>
<td>Stages 1</td>
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<tr>
<td>Team 1</td>
<td>Team 1</td>
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<tr>
<td>Rep, Rev, Opp</td>
<td>Rep, Opp</td>
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<td>2</td>
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<td>Opp, Rev, Rep</td>
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<td>Rev, Opp, Rep</td>
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VI. The Stage Regulations

The performance order in the Stage of a PM:

The Opponent challenges the Reporter for the problem ........................................ 1
The Reporter accepts or rejects the challenge ...................................................... 1
Preparation of the Reporter ............................................................. 5
Presentation of the report ................................................................. 12
Questions of the Opponent to the Reporter and answers of the Reporter ........ 2
Preparation of the Opponent ............................................................. 3
The Opponent takes the floor, maximum 4 min. and discussion between the Reporter and the Opponent ........................................ 14

Reserved Time in minutes

[Table continued]
The Opponent summarises the discussion ................................. 1

Questions of the Reviewer to the Reporter and the Opponent and answers to the questions ...... 3
Preparation of the Reviewer ................................................. 2

The Reviewer takes the floor .............................................. 4

Concluding remarks of the Reporter .................................... 2
Questions of the Jury ......................................................... 5

In a two team PM, all phases that the reviewer participates in are omitted.

Total time for a two team PM is 46 minutes.

The official language of the IYPT is English.

VII. The Team Performance in the Stages

The Reporter presents the essence of the solution to the problem, attracting the attention of the audience to the main physical ideas and conclusions. The Opponent puts questions to the Reporter and criticises the report, pointing to possible inaccuracy and errors in the understanding of the problem and in the solution. The Opponent analyses the advantages and drawbacks of both the solution and the presentation of the Reporter. The discussion of the Opponent should not become a presentation of his/her own solution. In the discussion, the solution presented by the Reporter is discussed. The Reviewer presents a short evaluation of the presentations of Reporter and Opponent. During one PM only one member of a team takes the floor as Reporter, Opponent or Reviewer; other members of the team are allowed to make brief remarks or to help with the presentation technically. No member of a team may take the floor more than twice during one Selective PM or, as Reporter, more than three times in total during all Selective PMs. During the Final PM any team member can take the floor only once. The COC must inform about the devices available for presentations not later than two months before the CaYPT.

VIII. The Rules of Problem-challenge and Rejection

1. All problems presented in the same PM must be different.

2. Selective PM

   The Opponent may challenge the Reporter on any problem with the exception for a problem that:
a) was rejected by the Reporter earlier;
b) was presented by the Reporter earlier;
c) was opposed by the Opponent earlier;
d) was presented by the Opponent earlier.

If there are less than 2 problems left to challenge, the bans d), c), b), a) are successively removed, in this order.

During the Selective PMs, the Reporter may reject the challenge of 2 different problems in total without penalty. Only one rejection is allowed from each group. For every subsequent rejection, the coefficient of the Reporter (see section X) is decreased by 0.2. This reduction continues to apply during the following selective PMs. The maximal number of different problems a team is allowed to reject during the whole competition is 5.

IX. The Grading

After each stage the Jury grades the teams, taking into account all presentations of the members of the team, questions and answers to the questions, and participation in the discussion. Each Jury member shows integer marks from 1 to 10. The mean of the highest and the lowest marks is counted as one mark which is then added to the remaining marks. This sum is used to calculate the mean mark for the team. The mean marks are multiplied by various coefficients: 3.0 or less (see section VIII) for the Reporter, 2.0 for the Opponent, 1.0 for the Reviewer and then transformed into points.

X. The Resulting Parameters

1. For a Team in the PM

The sum of points (SP) is the sum of mean marks, multiplied by the corresponding coefficients and rounded to one decimal. Marks are rounded after every Stage. All subsequent calculations are performed using the SP of Stages.

2. For a Team in the Tournament

The total sum of points (TSP) equals the sum of SP of the team in all Selective PMs. The number of fights won (FW) is the number of Selective PMs, in which a team received the highest SP from all two or three teams participating in the same PMs.

XI. The Final Physics Match
The three teams with the highest TSP by the end of the selection PMs are invited to the final PM. The score of the final PM determines the final team ranking of the finalist teams. In the final PM, the teams are allowed to select any of the CaYPT problems that they have not reported in the selective PMs. The order of choices is given by the TSP of the selection PMs. In case of a tie, a draw will decide the order problem selection. In the final PM, each member of a team can only take the stage a maximum of one time.

The final PM will be video recorded by members of the COC. The audience is asked to minimize video recording and photography. Parents are prohibited from entering the final PM room, however, the match will be live-streamed if circumstances permit.

**XII. The Final Team Ranking of the CaYPT**

Students in the top half (rounded up) of participating teams receive medals. The students of the team in the top 15% are awarded 1st place certificates and gold medals. The students of the team from the top 15% to 30% are awarded 2nd place certificates and silver medals. The students of the team from the top 30% to 50% are awarded 3rd place certificates and bronze medals. All participating students receive certificates of participation.

Medals are determined by the following method:

\[
\text{Percentile Ranking} = \frac{\text{Team Placement}}{\text{Number of Participating Teams}}
\]

If \(\text{Percentile Ranking} \leq 15\%\), the team receives gold medals.

Else if \(15\% < \text{Percentile Ranking} \leq 30\%\), the team receives silver medals.

Else if \(30\% < \text{Percentile Ranking} \leq 50\%\), the team receives bronze medals.

All other teams receive only certificates of participation

All cutoffs are exact.

**XIII. Individual Awards**

Individuals Awards are given to outstanding students competing in the CaYPT. Individual Awards are independent of team ranking and are decided by jury nomination.

The list of Individual Awards include:

1) Outstanding Theory x1
2) Outstanding Experiment x1
3) Leadership x1
XIV. Individual Selection and Qualification for Team Canada

Teams receiving medals can nominate all team members to participate in the individual selection round. Additional students can be nominated by request of the Jury. The nomination are submitted to the COC by team leaders and team leading teachers.

XV. The Status of the Regulations of the CaYPT

The regulations are established by the COC and may be changed only by the COC.

Accepted on Oct 19, 2020.