# The Thirty-fourth Hong Kong Mathematics Olympiad (HKMO) (2016/17)

### Aims / Objectives

This is to invite secondary schools to participate in the captioned competition.

## Details

2. The Thirty-fourth Hong Kong Mathematics Olympiad (34th HKMO) is jointly organised by the Mathematics Education Section, Education Bureau and the Department of Mathematics and Information Technology of The Education University of Hong Kong. The aim of the competition is to develop students' mathematical abilities and foster their interest in mathematics.

3. The Heat Event will be held on 18 February 2017 (Saturday). The <u>50</u> teams with the highest scores (sum of the scores in the <u>Individual Event</u>, <u>Group Event</u> and <u>Geometric</u> <u>Construction Event</u>) in the Heat Event will enter into the Final Event which is scheduled for April 2017.

4. To enhance the competition, the Organising Committee of the 34th HKMO would like to invite teachers interested in the competition to propose question(s) for the Heat or the Final Event of HKMO. Teachers interested in doing so may write down both the question (one to two questions, in English, Chinese or bilingual) and the full solution on Appendix 3c, and **FAX** it to the Mathematics Education Section, Education Bureau (or email to robertcheng@edb.gov.hk) <u>on or before 16 December 2016 (Friday)</u>. The problem selection working group will select suitable questions for the competition. All unselected questions will be sealed and kept for one year, which will then be destroyed afterwards.

5. Schools interested in sending a team to take part in the 34th HKMO are requested to complete the attached Application Form (Appendix 3a) or the e-form which is available from the website:

<u>http://www.edb.gov.hk/en/curriculum-development/kla/ma/res/sa/hkmo-34-hkmo.html</u> and return it via <u>Fax</u> to the Mathematics Education Section, Education Bureau (or email to robertcheng@edb.gov.hk) <u>on or before 16 December 2016 (Friday)</u>.

6. Regulations for the captioned competition are attached (Appendix 3b).

## **Contact Person**

7. For enquiries, please contact Mr CHENG Sze-man of the Mathematics Education Section, Curriculum Development Institute, Education Bureau on 2153 7436.

## **Application Form**

Mathematics Education Section Education Bureau 4/F, Kowloon Government Offices 405 Nathan Road Kowloon Fax No.: 3426 9265 (Attn: Mr CHENG Sze-man)

## The Thirty-fourth Hong Kong Mathematics Olympiad (2016/17)

My school would like to nominate the following students to take part in the captioned competition:

No.	Name of Student			
	Name in English	Name in	(M/F)	Class
	(DLUCK LETTEKS)	Chinese		
1				
2				
3				
4				
5				
6				

Dr / Mr /Mrs /Miss\* \_\_\_\_\_\_ will be in charge of the school team. \* Delete whichever inapplicable.

	Signature of	Principal:		
	Name of Pri	ncipal:		
	School:			
	Address:			
	Tel. No.:		Fax No.:	
School Chop	Date:			

#### <u>The Thirty-fourth Hong Kong Mathematics Olympiad (2016/17)</u> <u>Regulations (Heat Event)</u>

- 1. The Heat Event consists of three parts: <u>60 minutes</u> for the individual event, 20 minutes for the group event and 20 minutes for the geometric construction event.
- Each team should consist of 4 to 6 members who are students of <u>Secondary 5</u> level or below. Any 4 of them may take part in the individual event and any 4 of them may take part in the group event and the geometric construction event. Teams of less than 4 members will be disqualified.
- Members of each team, accompanied by the teacher-in-charge, should wear proper school uniform and present <u>ID Card or student identification document</u> when registering at the venue reception not later than 9:00 a.m. Failing to do so, the team <u>will be disqualified</u>.
- 4. Verbal instructions will be given in Cantonese. However, for competitors who do not understand Cantonese, written instructions in both Chinese and English will be provided. Question papers are printed in both Chinese and English.
- Each member of a team has to solve 15 questions in the individual event (<u>10 questions in Part</u> <u>A</u> and <u>5 questions in Part B</u>) and each team has to solve 10 questions in the group event and <u>ALL</u> questions in the geometric construction event.
- 6. In the group event and geometric construction event, discussions among participating team members are allowed provided that the voice level is kept to a minimum.
- 7. Please note that
  - (a) for the individual and group events, devices such as calculators, four-figure tables, protractors, compasses, set squares and rulers will not be allowed to be used; and
  - (b) for the geometric construction event, only writing instruments (pens, pencils, etc.), **<u>straightedge provided and compasses</u>** will be allowed to be used;

otherwise the team will be disqualified or risk deduction of marks.

# 8. <u>All answers in the individual event and the group event should be numerical and</u> reduced to the simplest form unless stated otherwise. No proof or demonstration of work is required.

- 9. Participants having electronic communication devices should have them turned off (including the alarm function) and put them inside their bags or under their chairs.
- 10. For the individual event, 1 mark and 2 marks will be given to each correct answer in Part A and Part B respectively. The maximum score for a team should be 80.

- 11. For the group event, 2 marks will be given to each correct answer. The maximum score for a team should be 20.
- 12. For the geometric construction event, the maximum score for a team should be 20 (all working, including construction work, must be clearly shown).
- 13. No mark for speed will be awarded in the Heat Event.
- 14. Participants should bring along their own instruments, e.g. **ball pens**, **pencils and compasses**.
- 15. The 50 teams with the highest aggregate scores (sum of the scores in the individual event, the group event and the geometric construction event) will be qualified for the Final Event.
- 16. Awards of the Heat Event:
  - (a) For the individual event,
    - (i) candidates obtaining full score will be awarded Best Performance and Score certificates;
    - (ii) apart from the best performer(s) in (i),
      - (1) the first 2% of top scoring candidates will be awarded First-class honour certificates;
      - (2) the next 5% of top scoring candidates will be awarded Second-class honour certificates ; and
      - (3) the next 10% of top scoring candidates will be awarded Third-class honour certificates ;
  - (b) For the group event, teams obtaining full marks will be awarded Best Performance and Score certificates.
  - (c) For the geometric construction event, teams having outstanding performance will be awarded certificates of merit.
  - (d) About 10% of participating schools with the highest aggregate scores (sum of the scores in the individual event, the group event and the geometric construction event) in each region will be awarded certificates of merit.
- 17. Should there be any queries, participants should reach the Centre Supervisor immediately after the competition. The decision of the Organising Committee on the queries is final.

# **Question Submission Form**

Mathematics Education Section		
Education Bureau		
4/F, Kowloon Government Offices	Teacher Name:	
405 Nathan Road	School	
Kowloon		
Fax No.: 3426 9265		
(Attn: Mr CHENG Sze-man)		

# The Thirty-fourth Hong Kong Mathematics Olympiad (2016/17)

Question:

### Solution: