

## **MATHEMATICS HIGHER GRADE PAPER 2**

### **GENERAL:**

In general, candidates were well prepared for this paper and it is clear that the syllabus was completed. However, it was also evident that some candidates who were not equipped for the Higher Grade syllabus were allowed to write this paper. This was especially true for part-time candidates.

Of the three sections in the paper, the analytical geometry was well done.

### **ANALYTICAL GEOMETRY QUESTION 1**

Question 1 was well done, with a substantial number of candidates scored full marks for this question. However, the following problems were encountered:

- Some candidates could not distinguish the properties of a median and an altitude of a triangle.
- In Question 1.2, candidates failed to write the given equation into the standard form of the straight line.

### **QUESTION 2**

This question was well done. However, many candidates failed to interpret the locus question (Question 2.3) correctly. They expressed the given relationship in terms of lengths, rather than gradients

### **TRIGONOMETRY**

#### **QUESTION 3**

In 3.1 candidates struggled to simplify  $\cos^2(180^\circ - \theta)$ , writing it as  $-\cos^2 \theta$  instead of  $(-\cos \theta)^2$ . Using actual values for proving 3.2.1, e.g.  $\tan 30^\circ \tan 60^\circ$ , or a triangle with sides 3, 4 and 5, instead of  $x$ ,  $y$  and  $r$ , was not acceptable

#### **QUESTION 4**

Candidates had no problems drawing the graphs in 4.2, but struggled to solve the equation given in 4.1 because they did not realise that they had to use the relationship between co-functions. Using interval notation correctly proved to be a problem in 4.3.

#### **QUESTION 5**

Question 5.1 proved to be challenging because the candidates did not realise that they had to express the equation in terms of the sine ratio and solve a quadratic equation.

The identity proof was well done.

### **QUESTION 6**

The failure to analyse the diagram in 6.1 led to the inability to apply the cosine rule appropriately in 6.1.1. Candidates lacked the mathematical insight to give the explanation required in 6.1.2. They argued intuitively about the opposite angles of a cyclic quadrilateral or the position of line segment BD, but none of these arguments could be accepted.

## **EUCLIDEAN GEOMETRY**

### **QUESTION 7**

In 7.1 candidates were penalised because of incorrect constructions. It was clear that they wrote the proof from memory and could not relate it to the given diagram.

It became clear that candidates lacked the ability to analyse a geometrical diagram. They were clearly challenged by the fact that the diagram contained two intersecting circles and a number of lines. This question was certainly very poorly answered.

### **QUESTION 8**

The bookwork in this question was well done. However, candidates failed in the application of this theory in 8.2.2.

### **QUESTION 9**

Candidates showed good understanding of the similarity of triangles. However, they were unable to use the information proved in the previous sections to solve 9.4.