

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
GCE Advanced Subsidiary Level

MARK SCHEME for the June 2005 question paper

8436 THINKING SKILLS

8436/02

Paper 2 (Critical Thinking), maximum raw mark 50

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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Grade thresholds for Syllabus 8436 (Thinking Skills) in the June 2005 examination.

	maximum mark available	minimum mark required for grade:		
		A	B	E
Component 2	50	31	27	20

The thresholds (minimum marks) for Grades C and D are normally set by dividing the mark range between the B and the E thresholds into three. For example, if the difference between the B and the E threshold is 24 marks, the C threshold is set 8 marks below the B threshold and the D threshold is set another 8 marks down. If dividing the interval by three results in a fraction of a mark, then the threshold is normally rounded down.

June 2005

GCE AS LEVEL

MARK SCHEME

MAXIMUM MARK: 50

SYLLABUS/COMPONENT: 8436/02

**THINKING SKILLS
Paper 2 (Critical Thinking)**

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1 Points to consider

The important questions are:

- Did Tariq have a motive to start the fire?
- Did he have the opportunity to start the fire?
- Is there strong evidence that he did start the fire?
- Could the fire have started in some other way?

- 1 **Fireman.** His comments can be regarded as reliable – expert, responsible job, no reason to lie. Comments imply that if fire was started deliberately, whoever started it must have been there between 19.30 and 19.45.
- 2 **Mrs Wong.** No reason to doubt her evidence. Map shows she could see rear of storeroom from her garden. Comments suggest that if fire were not started deliberately, a dropped match or cigarette may have started it.
- 3 **Ashok.** His evidence throws suspicion on Tariq, in that, if it is reliable, it shows that Tariq was near the source of the fire around the time it could have started. But Ashok may be prejudiced against Tariq, because he disapproves of the friendship with Kareena, and may wish to get Tariq into trouble. Also, Ashok's evidence is not fully corroborated by his companions.
- 4 **Headmaster.** Comments are speculative. They sound hostile to Tariq, but do not provide evidence one way or the other about Tariq's character. Also the fact that others who have been expelled have caused damage does not imply that Tariq has done so.
- 5 **Tariq.** Has a grievance against the school and may resent the caretaker. Does not like his new school, so may wish to retaliate against those whom he sees as responsible for his situation. May be copying others. If it is true that he was at Kareena's house from 19.05 to 20.00, then he could not have been seen by Ashok at 19.30, and could not have been at the school when the fire started. However, he could have read the fireman's assessment in the newspaper and has a vested interest in saying he was not close to the school at that time. The discovery of his notebook suggests he may have been in School Lane that evening, but also his explanation that he lost it some time ago is not unreasonable. It could have lain there without being noticed until a search was made for clues.
- 6 **Kareena's mother.** Her evidence backs up Tariq's statement that he was at the house, but does not confirm times. She gives a favourable character reference for Tariq.
- 7 **Kareena.** Backs up Tariq's statement as to the time he left, but no confirmation that he was there before 19.30. She suggests his mood was cheerful, rather than aggressive or resentful. She has an interest in supporting him because she is his friend, and she could have read the fireman's comments about timing.
- 8 **Caretaker.** His comments sound as if he is assuming, and wanting others to assume that Tariq is guilty. Not a very reliable person, since he did not arrange for the waste paper to be collected, and did not lock the gates. Thus his assertions that students do not smoke behind the storeroom, and that he checks that no one is in the grounds when he leaves cannot be regarded as reliable. He may be disputing Mrs. Wong's claim to distract attention from his failures in carrying out his duties.

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- 9 **Hard evidence.** No one entered the front gates between 19.00 and 20.00 (CCTV), so if someone was in the grounds between 19.30 and 19.45, they must either have been there when the caretaker left, or have entered through the back gate, or climbed over the high wall. Anyone who did not want to be seen entering would be unlikely to climb a high wall, especially as there are security lights. The group of boys seen by Ashok and his friends could have stayed in the grounds after school hours, or entered by the back gate, and thus could have started the fire either accidentally or deliberately. Tariq would have been unlikely to enter the grounds when the caretaker was still there, if he was going to start a fire. He could have entered through the back gate after 19.00 if he was not at Kareena's house.

Conclusion

Tariq can be seen as having both a motive and the opportunity to start the fire. The motive would be revenge against the school, and possibly particularly the caretaker, who would be likely to get into trouble after the fire, because he had neglected his duties. Tariq could have had the opportunity, because we cannot be certain that he was not in the school grounds at 19.30.

However, there is no strong evidence that he did start the fire, or even that he was there when the fire started. The two pieces of evidence that might suggest he was involved – Ashok's statement and the notebook – are inconclusive. Ashok may have been mistaken, or may have been lying, and the discovery of the notebook does not tell us when the notebook was dropped.

The fireman's statement implies that the fire could have been started either accidentally or deliberately. If it was started accidentally, then some person(s) must have been in the school grounds between 19.30 and 19.45. This is possible, because the caretaker left the gate unlocked, and also, given his unreliability, may not have checked whether anyone was in the school grounds when he left at 19.00. The group of boys who were seen in School Lane may have been smoking behind the storeroom, and may have started the fire accidentally.

Hence it is no more likely that Tariq started the fire deliberately than that someone else started the fire, either accidentally or deliberately.

Mark Scheme

Marks are awarded under 3 headings:

- breadth of coverage/3
- depth/level of evaluation/9
- judgement or conclusion/3

Coverage (of points 1–9)	Number of points covered	Mark
Level 3	8 - 9	3
Level 2	6 - 7	2
Level 1	3 - 5	1

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Evaluation	Descriptor	Marks
Level 3	Thorough, critical and sound evaluation of evidence, referring to circumstances and witness statements. Reference should be made to reliability (of evidence source), corroboration, plausibility.	7 - 9
Level 2	Some critical and generally sound evaluation.	4 - 6
Level 1	One or more points of evaluation offered, not necessarily correct or consistent	1 - 3

Conclusion	Descriptor	Mark
Level 3	Acceptable, appropriately weighted conclusion, that is also consistent with the evaluation, + a summary or short supporting argument.	3
Level 2	Acceptable, consistent conclusion, with very limited supporting argument.	2
Level 1	Acceptable conclusion.	1

N.B. The conclusion need not be a separate section of the answer.

2 (a) One mark for each of the following, up to a maximum of 3 marks:

- Many of the food products we can buy are bad for our health
- Governments have to pick up the bill in increased costs for health care
- It is unfair for anyone to have to contribute through taxation to solve a problem caused by the bad choices of other individuals
- Total freedom of choice as to what we consume can leave us with less control over our own lives/parents are helpless to resist the pressures
- It would not be popular for members of the government to appear on television telling people what they should and should not eat/people would ignore such messages and make up their own minds
- In order to ban advertising of such foods to children, it would be necessary to ban them altogether
- Banning advertising of all these foods would not solve the problem
- Even without adverts, adults themselves cannot be relied upon to make the right choices

(b) One mark for each of the following, up to a maximum of 2 marks:

- Children are easy (or the easiest) to manipulate
- People do not grow out of unhealthy eating habits acquired during childhood
- Parents cannot refuse to grant their children's demands for unhealthy foods

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(c) One mark for an appropriate example. Some possible suggestions:

- It is unfair for taxes to be used to solve problems caused by smoking, drinking alcohol, and drug taking
- It is unfair for taxes to be used to solve problems caused by the activities of criminals

One mark for a good reason.

Some good reasons for acting on the principle:

- It would make the majority of the population think that their taxes were being used wisely
- It would be a signal to those who make bad choices that they should change their habits

Some good reasons for not acting on the principle:

- Governments have to solve social problems in some way, and how can they meet any costs, if not from taxation?
- Examples such as solving problems caused by criminals' bad choices show that it is to the advantage of the majority for taxation to be used in this way

(d) One mark each for:

- People are not so easily influenced by what is said on television
- Adults are almost as susceptible as children to messages that appear on television

(e) The statement could be claimed to weaken the argument, or to neither strengthen nor weaken it.

- One mark for saying either that it weakens the argument, or that it neither strengthens nor weakens it
- One mark for pointing out that in order to weaken the argument, it has to be assumed that there is a causal relationship between the showing of the programmes and the fall in the numbers who smoke
- If the candidate's answer is that it weakens the argument, one mark for saying that the assumption of a causal relationship is not unreasonable, and one mark for saying that it weakens support for the conclusion by showing that it is worth trying an education campaign on the dangers of 'unhealthy' foods, instead of taking the drastic step of banning the production and sale of these foods
- If the candidate's answer is that it neither strengthens nor weakens the argument, one mark for saying that stronger evidence of a causal relationship is required, and one mark for pointing out a relevant difference between the two cases, e.g. the bad effects of smoking are more frightening, or many people want to stop smoking in any case, perhaps for financial reasons, and seeing the programmes pushes them in the right direction

OR

one mark for saying that it strengthens one side and weakens the other side of the contradiction referred to in (d)

(f) (i) One mark for identifying the reason given, i.e. that 'otherwise manufacturers would not spend so much money on it'

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One mark for a reasonable assessment of the strength of support this gives, e.g. that it is reasonable to think that advertising is costly for manufacturers, and that it would not be sensible to incur these costs if they did not result in increased sales

One mark for pointing out that this does not amount to direct evidence that advertising causes people to buy things

(ii) One or two marks depending on the appropriateness of the evidence suggested and thoroughness of the answer. Some appropriate suggestions for seeking additional evidence:

- comparing sales figures for a product before and after advertising campaigns
- comparing sales figures for two comparable products where one has been advertised widely and the other has not
- consumer surveys questioning whether consumers have seen certain advertisements, and why they buy certain products

3 Structure of the argument

Main conclusion: Speed cameras should be dismantled and thrown away.

Reasons and Intermediate Conclusions

Each of paragraphs 2 to 6 contains reasons and at least one intermediate conclusion. In the following analyses, the major intermediate conclusion of each paragraph is in bold print.

Paragraph 2

The penalty for speeding is an automatic fine

So

Speed cameras provide an easy source of income for the government

So

That is why they are used

So

They are installed for the wrong reason

Paragraph 3

In some countries road deaths have increased by up to 2% since these cameras were introduced.

And

The high accident rates on roads with speed cameras may be due to dangerous bends or a poor road surface

So

The idea that cameras make roads safer depends on two false assumptions – that exceeding speed limits causes crashes and that enforcing speed limits will reduce road accidents and deaths

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Paragraph 4

Poor drivers driving slowly crash at lower speeds, but they still crash

So

It is not true that sticking to a speed limit means you are driving safely

And

The cameras make drivers think that if they stick to a speed limit, they are driving safely

And

The fact that they are easily seen encourages drivers to stick to speed limits when they are close to a camera, and to break the law at other times

So

The cameras have two serious consequences

Paragraph 5

One can stop more quickly if one is driving more slowly, provided the brakes and the tyres are good, and one's reactions are quick

But

Here we are adding conditions to what is supposed to be an absolute rule

So

Ensuring road safety is too complex a matter to be achieved by speed cameras

Paragraph 6

What is needed to reduce road accidents and deaths is better education, better training and better testing for drivers, to ensure that those who are entitled to drive will perform at the highest standard

So

Obviously we do not need speed cameras

Assumptions

In connection with Paragraph 2

- There is only one reason why speed cameras have been installed
- If something is done for the wrong reason, then it is the wrong thing to do

In connection with Paragraph 3

- The increase in road deaths shows that the cameras have not made roads safer
- If dangerous bends or poor road surfaces have caused accidents, then speed has not been a contributory factor

In connection with Paragraph 6

- If we need better education, training and testing to reduce road accidents and deaths, then we do not need anything else

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Strengths and weaknesses

This is not a very strong argument, and probably the best that can be said for it is that it is true that factors other than speed can contribute to accidents, that better driver education (including attempts to change attitudes to speeding) would be a good thing, and that the use of speed cameras cannot itself ensure road safety.

The major weaknesses of the argument are as follows:

- The fact that speeding fines provide income does not imply that the cameras are used in order to provide income. Given two comments in the argument – that many drivers have been caught speeding and that one can stop more quickly if one is driving more slowly – it is probable that the cameras are used because it is believed that they will make roads safer
- Even if they had been installed to provide income, it does not follow that they are not useful in reducing accidents
- The increase in road deaths is not good evidence to conclude that enforcing speed limits will not reduce accidents and deaths. The increase may have been caused by some other factor, for example, an increase in the volume of traffic, and there may have been a decrease on roads on which cameras have been installed. If this were so, it would be a reason for using more cameras
- The fact that accidents have been caused by dangerous bends and poor road surfaces does not imply that exceeding speed limits has not been a contributory cause. Had drivers been driving more slowly on such roads, the accidents may not have happened, or may have had less severe consequences
- No good reason is given to accept that cameras have the ‘two serious consequences’ mentioned in paragraph 4. Those who stick to speed limits when they know they are close to a camera may also stick to speed limits at other times, in case there is a camera that they have not noticed. Drivers are likely to think that if they stick to a speed limit, they will not be fined for speeding, but there is no reason to accept that they will think they are driving completely safely
- The comment about poor drivers is an unsupported generalisation. Also it does not tell us what constitutes poor driving. Driving too fast for the road conditions could be one criterion of poor driving – hence those who exceed speed limits could be said to be poor drivers
- In paragraph 5 it is implied that only those with good brakes and tyres, and quick reactions can stop more quickly if they are driving more slowly. Most cars have good brakes and tyres, and surely someone with slower reactions will still stop more quickly - and will be likely to cause less damage – if their speed is slower
- The five intermediate conclusions do not give strong support to the conclusion. Those in paragraphs 2, 3, 4 and 6 are not well established, for the reasons given above. The intermediate conclusion of paragraph 5 is a good reason for doing more than installing speed cameras, but not for getting rid of them

Further arguments

Supporting the conclusion

- The fact that many drivers have been caught speeding suggests that the cameras are not entirely successful in deterring speeding, hence strengthens the claim that cameras do not achieve the goal of safer roads

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Against the conclusion

- The argument suggests that the cameras make drivers slow down near to a camera. Thus if more cameras are used, and placed on roads where the accident rate is high due to excessive speed, then this is likely to reduce the number of accidents
- If more cameras were used, drivers would become more used to observing speed limits, and in time their habits may change
- If cameras were placed in such a way as to be difficult to see, drivers may drive more slowly at all times, because they would not know where the risk of being caught was greatest

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Question 3

Mark Grid

Evaluation	Level 3:	Level 2:	Level 1:	Level 0:
Component A Analysis	thorough critical evaluation of the argument, in terms of soundness, strengths, weaknesses, status of claims, assumptions, flaws.	critical evaluation of some key points in the argument	some evaluation or relevant discussion of the argument	some relevant discussion of the passage
Level 3: L2 + evident understanding of structure/techniques	12-13	10-11	8-9	6-7
Level 2: identifying the main conclusion , and key elements of at least 3 of the 5 strands of reasoning	10-11	8-9	6-7	4-5
Level 1: recognising the general direction of the argument, and some of the reasons	8-9	6-7	4-5	2-3
Level 0: summary of the text/parts of the text	N/A	4-5	2-3	1
Component B: Further argument (max. 4)	relevant and well developed		relevant	
for each point up to 2, or for 2 best points	add 2		add 1	

A mark for both components should appear on the script

e.g. (L 1 analysis/L 2 evaluation): 7 + (F/A) 3 = 10