

MARK SCHEME for the June 2004 question papers

8436 THINKING SKILLS

8436/01	Paper 1 (Multiple Choice), maximum raw mark 50
8436/02	Paper 2 (Critical Thinking), maximum raw mark 50

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do 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.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the June 2004 question papers for most IGCSE and GCE Advanced Level syllabuses.

Grade thresholds taken for Syllabus 8436 (Thinking Skills) in the June 2004 examination.

	maximum mark available	minimum mark required for grade:		
		A	B	E
Component 1	50	37	33	20
Component 2	50	34	30	22

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 2004

GCE AS LEVEL

MARK SCHEME

MAXIMUM MARK: 50

SYLLABUS/COMPONENT: 8436/01

**THINKING SKILLS
Paper 1 (Multiple Choice)**

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<i>Question Number</i>	<i>Key</i>	<i>Question Number</i>	<i>Key</i>
1	E	26	B
2	D	27	D
3	A	28	D
4	C	29	D
5	D	30	C
6	C	31	E
7	B	32	B
8	D	33	A
9	D	34	B
10	B	35	D
11	B	36	B
12	E	37	D
13	A	38	A
14	C	39	E
15	B	40	C
16	C	41	E
17	C	42	C
18	C	43	E
19	D	44	C
20	C	45	C
21	D	46	B
22	E	47	A
23	C	48	B
24	A	49	D
25	E	50	E

TOTAL 50

June 2004

GCE AS LEVEL

MARK SCHEME

MAXIMUM MARK: 50

SYLLABUS/COMPONENT: 8436/02

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

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Question 1

Marks are awarded under 3 headings:

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

Coverage (of points 1-12 below)	Points covered:	Mark
Level 3	8-9	3
Level 2	6-7	2
Level 1	3 or more	1

Evaluation	Descriptor	Marks
Level 3	<i>Thorough, critical and sound evaluation of evidence, referring to circumstances, and witness statements. Ref. should be made to reliability (of source), corroboration, plausibility.</i>	7-9
Level 2	Some <i>critical</i> and <i>generally sound</i> evaluation.	4-6
Level 1	1 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, qualified conclusion without (or with very limited) supporting argument	2
Level 1	Acceptable conclusion	1

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

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Points to consider

There are four suspects: the secretary (S), the gardener (G), the students (D, K). Each of their statements has to be considered with the possibility that they are lying to hide their guilt and/or to point the finger at another suspect.

There are two apparently disinterested parties, the principal (P), and Whalid (W), both of whom are professional, responsible etc.

There is hard evidence from the telephone company (TEL), the late book (LB), the surveillance camera (CAM), and the grass cuttings on the floor (GRA).

1 **Secretary.** Responsible person, solid job. Plausible enough story, corroborated by CAM and TEL. But would she have left so much money in the drawer especially just before going to the bank? We are not told whether or not there was evidence of the drawer being forced, but since the police came and did not remark on it, it is reasonable to assume that it had been forced. (S would hardly have lied about something so easily verifiable.)

2 **Gardener.** Possibly just a casual or low paid worker who needs money. Statements challenged by W on two counts: that he was using a phone and the suggestion that he went inside the building. Also by GRA, though grass could just as easily have come in with someone else, e.g. the students. Also by D, K. His statement re. D and K is largely supported by LB, CAM, though he may be elaborating when he says they 'sneaked' in. The fact that he lied about the phone is very suspicious: if he was the anonymous caller, the likely motive was to divert the secretary while he took the money. Why else would he say he had no phone if, as W implies, he had? Only real defence here would be that W was mistaken. Lastly G would have been able to see S counting the money through the window and watched where she put it; and therefore had the knowledge as well as opportunity for the crime. G is a serious suspect.

3 **Students.** Had been in trouble; may not be 100% reliable/honest. Had opportunity to take money, but unlike G there is no reason to suppose they would have known there was money in the office or in the drawer. Hard evidence that they lied about time of arrival (CAM + LB); however, this could be explained by wish not to be in trouble with P. As they were questioned separately, their statements regarding the drawer do not conflict, and their claims to have seen a man in the corridor dressed like G tally. (It would be an unlikely story to have concocted, and if they had concocted it they would probably have been more positive.)

4 **Whalid.** No reason not to tell the truth. Responsible citizen, teacher. Could see clearly through window, but may have been mistaken about the phone and only supposed that G had gone inside. He was teaching and could have been distracted.

5 **Principal.** Merely gives a character reference for D, K. Admits they were sometimes in trouble, but no suggestion of serious misconduct, or of theft in particular. Provides them with a plausible reason for lying about their time of arrival.

6 **CCTV (CAM).** Confirms that (1) S went out and back in as she stated; (2) that D, K were later than they said; (3) G was in overalls. (Also that G wore ear protectors when working, and therefore may not have heard an incoming call: more plausible that he stopped to make a call.)

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- 7 **Grass cuttings.** Could incriminate G, but not conclusively.
- 8 **Late book.** Confirms that D, K lied, but not that they did so because of theft: they had another motive to lie.
- 9 **Phone company (TEL).** Corroborates S's story and fits with the evidence shown by CAM. Also confirms that the students lied about their time of arrival. Also suggests that whoever made the phone call may well have done so as a diversion, but does not support the inference that it was the gardener.

Conclusion

The evidence is not sufficient to remove all possible doubt, but it strongly points to G as the culprit. He had the opportunity, and his own statement is at odds with that of other witnesses, including disinterested ones. Any contrary conclusion would therefore require a convincing explanation for the conflict between G's statements and W's, especially regarding the phone and entering the building.

Question 2

- (a) One mark (up to a maximum of three) for each of the following reasons:-
- Car chases have led to deaths of car thieves and innocent bystanders.
 - The police drivers' judgements as to whether their speed is safe will become unreliable.
 - By the time the police driver judges that his speed is safe, he will have pushed the pursued driver well beyond his limit of competence.
 - Saving lives is more important than preventing thefts of cars.
 - The police would be more profitably employed trying to catch serious criminals.
 - There are other (safe) ways of stopping stolen cars.
 - Sometimes the car chases are unsuccessful.
- (b) One mark for each of the following:-
- Police officers find the chase exciting, and this affects their judgements about safety.
 - The police driver is likely to be able to drive safely at high speed, whereas the pursued driver has little driving experience, so that the police officer will overestimate what is a safe speed for the car thief.
- (c) One mark for each for the following assumptions:-
- It is not possible for the police officer to catch the thieves without driving too fast for safety.
 - If the stolen car were not being pursued, its driver would not drive so unsafely as to crash the car.

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- (d) Credit could be given either for saying that the statement weakens the argument or for saying that it neither strengthens nor weakens it.

It could be said to weaken it a little in that it weakens the force of one of the reasons (i.e. 'The police would be more profitably employed trying to catch serious criminals'). It implies that in some car chases, contrary to what is claimed in the passage, the police are trying to catch serious criminals. This could support a conclusion that car chases should not be banned, but the police should not carry out car chases in cases where it is obvious that the only crime involved is the theft of the car.

It may, however, be argued that it neither strengthens nor weakens the conclusion, since the major reason offered for banning car chases is that they cause deaths, and even the chance of catching serious criminals by means of a car chase cannot outweigh the dreadful consequences of car chases.

[One mark for saying either that the statement weakens the argument, or for saying that it neither strengthens nor weakens it. One or two (or zero) marks for giving the reasons, depending on the clarity and accuracy of the reasoning.]

- (e) One mark each for identifying:-

- Car chases can be huge fun for all the participants.
- Car thieves are bored and disadvantaged young men who steal cars for excitement.
- There are other ways of catching/stopping car thieves.

The explanation as to why these observations cast doubt on the police claim is that they suggest that part of the motivation for stealing a car may be the fun of the chase. If the bored and disadvantaged young men knew that the police were banned from chasing stolen cars, they might not find the theft of a car so exciting, and a ban may not lead to an increase in car thefts.

[One, two or zero marks depending upon the clarity and accuracy of the explanation.]

- (f) The comparison is between:-

- Deaths resulting from the police action of chasing stolen cars.
- Deaths resulting from police action where a gun is the cause of death.

[One mark for identifying these.]

In order to give support to the argument, the analogy has to compare things which really are similar, and it has to be true that there ought to be an outcry if police action resulted in deaths from firing a gun.

[One mark for making clear that this is what is required. One mark for pointing out ways in which the two things are similar or dissimilar.]

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Similarities:-

- those killed may be innocent bystanders
- there may be other ways of dealing with the crime or of catching the criminal.

Dissimilarities: -

- deaths from police gunfire are more likely to be of dangerous criminals
- deaths from police gunfire result more directly from the action of the police officer.

[One mark for assessing whether there should be an outcry if deaths result from police action when the fatal weapon is a gun.]

Acceptable comments:-

- There should be an outcry because catching a criminal can never be a justification for risking the deaths of innocent bystanders.
- There should not be an outcry if the case is one in which public safety is at risk from a criminal with a gun, and the police action results in the death of the criminal.

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Question 3

Evaluation ⇒ Analysis ↓ Component A:	Level 3: thorough critical evaluation of the argument, in terms of e.g. soundness, strengths, weaknesses, status of claims, assumptions, flaws. <i>At least 3 of these must be included</i>	Level 2: critical evaluation of some key points in the argument	Level 1: some evaluation or relevant discussion of the argument	Level 0: some relevant discussion of the passage
Level 3: L2 + evident understanding of form/structure/techniques	12-13	10-11	8-9	6-7
Level 2: identifying the main conclusion , and ALL or MOST of the key reasons	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 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		

The A mark is a pairing of the level of analysis and of the level of evaluation.
The B mark is then added. E.g.

(L1 analysis, L2 evaluation): 7 + (F/A) 3 = 10

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Analysis

Context/target:

Statistics/experience (e.g. of taxis) suggest that it is irrational to fear flying.

BUT:

- C** There is nothing irrational about the fear of flying: (willingness to fly is what is really irrational.)

Reasons/sub-arguments

- 1 We are heavier than air, etc.
We cannot fall far without serious harm.
(IC-1) We were not meant to fly.
(IC-2) Fear of flying is a natural response to an unnatural activity and we should not consider it.
- 2 Flying is claustrophobic, uncomfortable, etc.
It is a mistake to call air travel 'flying'.
(IC-3) No one with imagination would submit to it.
- 3 Planes are flown by humans, who are fallible.
Mistakes are serious when they occur at 15 000 m.
(IC-4) It is rational to be more afraid, not less, when flying.

NB

For Level 2, one or more of the reasons from each sub-argument should be supplied. For Level 3, there should also be some recognition of the structure, i.e. the three sub arguments and their ICs; and of the function of the first paragraph setting out the target argument.

Assumptions

- If a response is natural it is rational.
- The connection between what is natural and what it is rational to fear.
- That people who do submit to the discomforts of flying lack imagination.
- That people who lack the imagination to fear flying are irrational.

Terms needing clarification

- 'rational' and 'irrational'
- 'natural' and 'unnatural'/'meant to go'

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Strengths/weaknesses

The argument has certain strengths. It is quite successful in observing that rationality is not only to do with statistics. It offers three other factors which arguably make it perfectly rational to fear flying: the unnaturalness, the overcrowding and lack of control or ability to escape, and the seriousness of accidents when they do happen (even if rare). If we accept that it is rational to fear these things, then we have good reasons to accept the conclusion.

However, it is not established that rationality and fear are connected at all. It is one thing to say that it is natural to fear flying, but it does not follow that it is rational. Indeed, it could be argued that rationality had nothing at all to do with emotions like fear: rationality can only be applied to facts and figures/risk assessment etc. Part of the problem (already noted) is that the key terms in the passage are not defined or clarified: they are left vague.

Some of the premises are themselves suspect, further weakening the case. For example:

- 'No one with a shred of imagination or reason would submit...' Almost certainly this is false/exaggerated: people with imagination and/or reason clearly *do* submit to flying, arguably *because* they are rational. This could be developed into a strong challenge.
- 'At 15000 m (a mistake) is always bad news.' Again an exaggeration. Mistakes are often made and rectified by pilots. Arguably in the sky there is more time for correcting errors than on crowded roads.
- 'Planes are flown...by ordinary people like you and me.' Pilots are highly trained and not like you and me. That does not mean they are 'super-beings': it is a flaw in the reasoning to suggest that people are all either one or the other.
- 'We were never meant to go...(in the air)' This is another expression that needs to be clarified and is questionable. Humans have inventive brains which have allowed them to fly just as wings have allowed birds to fly: is there any difference? Arguably not.

Another weakness is that the opening paragraph does a very good job of giving the counter-argument. It implies that people are inconsistent in their attitude to risk, which is a form of irrational behaviour/thought.

Special language and its effects

The reasoning is accompanied by a number of persuasive rhetorical devices: e.g.

- ...sit calmly with nothing but 15000 m of fresh air
- no right minded person...
- We break and we cannot be mended
- No one with a shred of imagination.

It is a valid criticism to say that the author is appealing to feelings rather than fact or evidence.

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Further argument

For (e.g.):

The added danger of terrorism/'air-rage'/high-jacking/deep-vein thrombosis/infection from recycled air ...

Against (e.g.):

Any of the points made in the evaluation could be amplified. So could the arguments implicit in the first paragraph about the equal or greater dangers on the ground of which people who fear flying evidently do not fear. Inconsistency = irrationality.

There are also opportunities for a balanced adjudication, suggesting that it is irrational in one sense (on the basis of statistics), but rational on another because of the strangeness of flying.