



General Certificate of Education

Critical Thinking 2771

CRIT4

Unit 4 Reasoning and Decision Making

Report on the Examination

2010 examination - June series

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CRIT4 A2 Reasoning and Decision Making

General comments from the Chief Examiner

Introduction: The examination as a whole

June 2010 was the first anniversary of the AQA AS-Level in Critical Thinking. It was also the first examination of Units 3 and 4, and so of the first full A-Level. As with any new award there are lessons to be taken from the experience. Generally speaking the question-papers discriminated well. There was a very wide range of ability evident in the scripts, and the papers allowed the most able candidates to demonstrate their more advanced thinking-skills and understanding of the concepts, whilst giving the less-accomplished opportunities to gain a basic level of marks. However, there were also areas of the syllabus and corresponding questions in the exam where too many candidates were missing the point and failing to earn marks that should have been within their grasp.

There is no doubt Critical Thinking is a difficult subject, if judged on the basis of the awards. High grades are not easily gained. This has proved so since CT's inception, not only for AQA but for other boards and other related awards, both in the UK and internationally. There are some obvious reasons for this. Firstly CT is taught in the main by non-specialists whose own academic backgrounds vary widely. Many teachers feel that it takes them out of their comfort zone, not because they lack the requisite knowledge, but because of the general, cross-curricular nature of the subject. Those whose territory is maths or science are sometimes daunted by the discursive elements; arts and humanities specialists by activities involving maths and statistics. Some, it has to be acknowledged, teach it reluctantly. No subject is well taught if not taught with enthusiasm, and Critical Thinking is no exception. Indeed it is probably more dependent on the enthusiasm of the teacher than most subjects. Having said that, there was also clear evidence of some excellent teaching and thorough preparation in many centres, not just of the most able candidates but of many who were, at best, of average ability.

A second reason for sometimes lower-than-expected attainment in CT is insufficient time to prepare candidates for the examination. Whilst many centres do make adequate time-table provision, which for the AQA award is a recommended *minimum* of 2 hours per week, a proportion do not, and enter candidates who are not sufficiently immersed in the discipline or confident in the skills. Coupled with this is a perception that because Critical Thinking has less 'content' than other AS-/A-Levels, the syllabus can be covered in significantly fewer hours. This is a misconception: there is a body of knowledge and understanding that is essential to success, and this is laid out and explained in the Specification. If the concepts and related terminology are not well-understood even the most naturally able candidates will struggle to gain the highest marks in the exam. The concepts are not difficult and the terminology is neither technical nor extensive; but much of it will be new to candidates at the start of the course, and also quite abstract. Moreover it is not just knowledge *of* the concepts or of what terms mean that are tested in CT but their *application*, and it is this which takes time and repetition to bring to the required level.

By its cross-curricular nature much of the conceptual content is not unique to CT, but is drawn from other disciplines. To give one example: in Unit 2 a question may arise that involves data in the form of *averages*. The concepts of mean and median are taught from Key Stage 2 onwards in maths and statistics, and Unit 2 assumes that candidates are familiar with them.

Candidates taking CT are not tested on their ability to explain or calculate an average, though in the process of answering the question they may need to make simple calculations of that kind, and again it is assumed that they can, given their general education up to GCSE. What a CT question will typically test is the candidate's ability to assess reasoning based on such data: What can and/or cannot be reliably *inferred from* it? What might *explain* it (if, for instance, it is surprising, counter-intuitive or anomalous in some way)? What *implicit assumptions* are made in drawing a particular *conclusion* from it? And so on. The true content of Critical Thinking is the conceptual apparatus required for these tasks: inference, explanation, claim, conclusion, assumption, etc. And these too are notions that have their place in other curriculum subjects. (Applying them is, in the jargon, a *transferable* skill.)

The point to take from this is that no teacher or candidate need be intimidated by the difficulty or complexity of the content of CT, nor of the quantity of what has to be learned. But it must be recognised that there *is* a content (albeit a slender one) and that candidates need to be thoroughly familiar with it, and practised in applying it in all sorts of contexts, for success in the subject. CT is a set of high-order thinking skills, common to all disciplines and drawing on all.

To end on an encouraging note, a number of this year's candidates consistently demonstrated these skills to a very impressive level, and many others did so to a commendable level. It is hoped that the individual examiners' reports on specific units will assist centres to build on this success and raise performance in future years.

General Comments from the Principal Examiner

Opening Remarks

This was the very first exam for unit 4, with its distinctive feature of pre-release source documents. These were released almost two months prior to the exam, and candidates were allowed and encouraged to discuss the source document with their teachers in class via practical exercises, e.g. essays, debates, own research, presentations, etc.

Unfortunately when it came to Question 9 where candidates could really show what they could do with the information in the pre-release documents, I was surprised by how infrequently candidates referred to the material. Five of the 28 marks for Question 9 were allocated to the use of source documents - a significant number of candidates scored 0 or 1.

Question 1

Most candidates did not know how to do the necessary calculations, or what method to employ, despite the decision tree being completed. Although this was the very first exam in Unit 4, candidates had access to two specimen papers, both of which had decision trees in Question 1, and there was also an example in the specification. These, in conjunction with their teachers' guidance, should have been sufficient practice material to enable candidates to attempt Question 1 with some confidence – and the best answers did, scoring 8 out of 8.

But most candidates did not attempt the question or merely repeated the figures in the decision tree – stating that option B is less risky than A. This response gained 1 mark.

This gap in candidates' critical thinking skills should be addressed by centres. It may possibly constitute a learning curve for some teachers.

Question 2

This question was well handled with most candidates gaining 5 out of the 5 marks available.

Question 3(a)

The flaws must be fully developed to get all 3 marks. If there are alternative causes of heroin addiction besides marijuana use, one or more of these should be suggested to complete the explanation. Also, it's not enough to just say the flaw is in thinking marijuana causes heroin addiction. If a candidate leaves it there, they will not gain any marks because this does not explain *why* this is a flaw.

Regarding the other flaw, merely stating that just because 90% of heroin addicts used to be marijuana users doesn't mean that 90% of marijuana users go on to use heroin, isn't enough to gain all 3 marks. A number of candidates used a diagram to illustrate their response.

Question 3(b)

This question was reasonably well answered, though some candidates merely repeated the IC and claimed it was the assumption. However, they needed to look at the *inference* between this and the MC.

Question 4(a)

This was generally answered very well, though some candidates misinterpreted the question and used the table in doc B to 'prove' drugs were safer than alcohol and tobacco.

Question 4(b)

Generally poorly answered, most candidates did not understand the term 'moral principle' and simply repeated phrases from paragraph 7 in document A.

Question 5(a)

Candidates should be encouraged to be a little clearer in their comparisons, e.g. a candidate would gain a mark if they state that a weakness of the analogy is that horse riding is an intrinsically healthy pursuit, whereas taking Ecstasy is not, compared to merely stating, 'horse riding is healthy'.

Some candidates stated that horse riding was legal but Ecstasy was not and that this therefore was a weakness in the analogy. They were wrong, and it's worth pointing out why, it's to do with the *purpose* of the analogy. Nutt is questioning why Ecstasy is illegal when it doesn't seem to be as dangerous as a legal activity such as horse riding. He is pushing for the legalisation of Ecstasy, so there is no point in comparing Ecstasy with yet another illegal activity.

Nuff needed a *legal* activity that is comparable to Ecstasy in order to make his point that the legalisation of Ecstasy should be given serious consideration. This is why it's not listed as a strength in the mark scheme; because it's far more crucial than a mere strength; it's a necessary condition.

Question 5(b)

Most candidates struggled with the concept of a 'political' argument, and instead gave moral or health arguments. Few used the statistics in document H giving majority figures against legalising drugs.

Question 6 Ok.

Question 7

This question was almost universally misunderstood by candidates as asking for an assessment of the two arguments *themselves*, when in fact it was asking for an assessment of them merely as *constituting the case* for legalisation, i.e. was the author being fair to the legalisers by representing their whole case as just consisting of these two arguments.

Question 8(a) Ok.

Question 8(b)

Similar comments apply here as for the analogy question - Question 5(a).

Question 9

Quite a number of candidates went single-mindedly for one solution to the drugs problem, (most, interestingly, argued to keep drugs illegal), but were so single-minded that they ignored arguments for the other side, and also could not see any negative consequences resulting from that which they were arguing.

Some spent too long listing detailed punishment strategies, and not enough time giving reasons for why they thought these the best option, what the likely consequences were, and arguing against alternatives. Very few appealed to moral principles as part of their case, yet one of the bullet points was devoted to this.

Candidates at A2 are expected to handle principles in argument and be able to cite documentary evidence for their case, and wield counter arguments against rival claims.

Quite a few did not distinguish between the two conclusions required, (short term and long term), and some didn't even mention candidates at all, (despite this being an integral requirement of the question), merely confining themselves to punishments in general, and whether drugs should be legalised.

Candidates by and large ignored the bullet point instruction to discuss consequences in terms of their importance, likelihood, and whether they counted for or against their proposals, being content to merely mention one or two possible consequences as if that's all that needed to be said.

Example of typical argument below:

We need much harsher penalties for drug use. This will deter users and dealers.

This is far too simplistic. No attempt to address the adverse consequence of already overcrowded prisons becoming even more overcrowded, or the lack of deterrent effect on addicts, or the negative effects on a candidates career, or whether the drugs used were class A or C, or the fact that despite Britain having one of the most robust punitive responses to drugs use, we are at the top of the European table of problem drug users (doc G).

There were a total of 9 marks available for dealing with consequences attendant upon various proposed solutions; only one candidate scored all 9. Most scored around 4.

New Numbering System and New Style Answer Book

Centres are thanked for preparing so thoroughly their candidates to work with the new numbering system and the new style answer book. The majority of candidates responded well to the changes to the June 2010 exams, but where difficulties were experienced, centres are asked to draw candidates' attention to the comprehensive range of guidance material that is available on this subject in order that they are confident about what is required of them in future examinations. Support available on this issue includes Guides for teachers and candidates, and specimen question papers and mark schemes showing the changes in action. All documents published in support of the changes to exams can be accessed via notices published on all qualification homepages, all subject notice boards, and on the parent and candidate area of the web.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **results statistics** page of the AQA Website - <http://www.aqa.org.uk/over/stat.html>