Cambridge Assessment International Education

Cambridge International AS & A Level

THINKING SKILLS **9694/43**

Paper 4 Applied Reasoning **October/November 2021**

MARK SCHEME

Maximum Mark: 50

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2021 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

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GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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ANNOTATIONS

Annotation Qs 1 to 3	Meaning and use
	Correct response. Use when a mark has been achieved in Q1, 2 and 3.
	Not good enough. Use in Q1, 2 and 3 when a response is partly correct but is insufficiently creditworthy for a mark to be awarded.
	Benefit of doubt
	No marks awarded in question
	Underline. For material which prevents a mark from being awarded.

Annotation Q4	Meaning and use
	Creditworthy material in the Structure skill
	Main Conclusion
	Intermediate Conclusion
	Argument Element
	Creditworthy material in the Use of Documents skill
	Evaluation of documents
	Comparison of or inference from documents

Q	Creditworthy material in the Quality of Argument skill
T	Treatment of counter-position
L2	Level achieved. Add annotation at the end of Question 4 in the order of S, U, Q from left to right.
	Elevated demonstration of a skill Higher mark within a level awarded
	Diminutive demonstration of a skill Flaw or weakness Lower mark within a level awarded
SEEN	Examiner has seen that the page contains no creditworthy material Use to annotate blank pages
Highlight	Use to draw attention to part of an answer

There must be at least one annotation on each page of the answer booklet.

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Question	Answer	Marks
1(a)	We hope that parents will support the introduction of this educational programme.	**1**
1(b)	*Award one mark for each of the following [max 2]:* CAss We are aware that there will be cost implications for our parents. R1 In order to soften the financial impact, we have set up a scheme for buying and insuring the tablet which will spread the cost over three years. IC We think this scheme will be affordable for the majority of families. R2 In addition, our ICT department has researched and chosen the least expensive device that will fulfil all the requirements of a school ICT course. *n/a* Information will also be provided about the purchase of the specific apps required for each subject, a full list of which can be found on our website. *Award one mark for identifying two relationships between elements, e.g.* • R1 supports IC. • IC is the conclusion of the paragraph and/or that IC directly supports the MC of Document 1. • R2 supports IC. • R1/IC is a response to the CA *Reference to start and end of elements must be unambiguous.* *Sample 3-mark answer* 'There will be cost implications for our parents' is a counter-assertion **[1]**. 'In order to soften … the cost over three years' is a reason supporting **[1]** an IC, which is 'We think this scheme will be affordable for the majority of families'. 'In addition, our ICT department has … a school ICT course' is another reason supporting the IC **[1]**.	**3**
1(c)(i)	*1 mark for each correctly identified IC [max 3]* *Mark only the first three answers given* • The opportunities for enhanced learning are considerable. • (so) the devices support the development of research skills. • The devices also offer the opportunity for enhanced learning though assessment and feedback. • It is important students bring their tablets to every lesson • (and) it is important that it [lifelong learning] starts here.	**3**

Question	Answer	Marks
1(c)(ii)	• Bringing a tablet to every lesson will not diminish other skills needed for passing examinations. • Bringing a tablet to every lesson will ensure that students develop technological skills. • Bringing a tablet to every lesson will engender lifelong learning. • Lifelong learning can only be achieved by the use of tablets in every lesson.	**1**

Question	Answer	Marks
2(a)	*2 marks for a developed version of any of the following points* *1 mark for a weak or incomplete version of any of the following points [max 6]* *Paragraph 2:* • *Weak support* – Having mentioned trials the letter then fails to mention in what way the results of these trials justify the prospect of enhanced learning opportunities. • *Appeal to popularity* – The fact that an unspecified number of local schools are implementing similar schemes is not a good enough reason to introduce on at this school. • *Appeal to novelty* – Innovation alone gives little support to the conclusion. • *Inconsistency* – as the school seems to be behind other schools in the area in adopting the use of tablets, it is inconsistent to claim that Millennium School will be 'at the forefront of educational innovation' by adopting them. *Paragraph 3:* • *Restricting the options* – students may be able to get information from sources other than long extracts from dusty textbooks or long and boring teacher explanations. (Could be phrased in terms of a *straw man*.) • *Conflation* – of traditional learning methods with dusty textbooks and long and boring teacher explanations. • *Weak support* – the argument does not convince one that having access to all the information on the internet will in fact develop research skills – one might even believe that the opposite were true.	**6**
2(b)	The reliability of Mr Lee could be weakened by bias, as he is the director of ICT and innovation **[1]**, which suggests that he may have some blind enthusiasm for new technology **[1]**. He may have a vested interest as he is the director of ICT and innovation **[1]**, which suggests that he may have career-related incentive to encourage the introduction of new technology **[1]**.	**3**

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Question	Answer	Marks
3	*2 marks for a developed version of any of the following points* *1 mark for a weak or incomplete version of any of the following points [max 6]* • There is an inherent bias in the agree/disagree responses, in that undecided respondents are more likely to say they agree than that they disagree or are undecided. • The survey was conducted within a single school, in which respondents might be less inclined to disagree with a colleague for fear of causing offence. • The claim appears to be about all teachers, but the data comes from a small sample from just one school. • Conflation – 'is useful to my teaching' is not the same as 'will transform learning in school.' (Credit either aspect of the conflation) • There is no indication of the extent of 'usefulness'. If those teachers who agreed thought the improvement would be only marginal then there is little support given to the claim that the introduction of the scheme will be transformational.	**6**

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Question	Answer	Marks
4	**'We should encourage the use of electronic devices by students in lessons.'** ***Example high scoring answers*** *Argument to support (714 words)* The routine use of electronic devices by students in lessons should be encouraged. There are likely to be many educational benefits in terms of curriculum-based learning opportunities and student engagement. The devices provide a huge opportunity to enhance curriculum learning. The scope for learning via the range of 'apps' available is mentioned in most of the documents, particularly Doc 5 and in Doc 1. Although Doc 5 gives no indication of extent or effectiveness of the activities they do give some indication of range. The fact that the teacher and student graphs do not match does not necessarily evidence inconsistency: what teachers have sub-divided into several categories might be regarded by students as 'completing assignments'. These activities might not all be better than traditional alternatives but, if expert teachers can pick and choose the correct apps and activities for their students to follow, then the much larger toolkit is likely to lead to improved learning. For example, while a page with pictures in a textbook might be a suitable learning resource for Student A, Student B's ability to process information might be such that some interaction with images or audio description is required to facilitate understanding. The author of Doc 1 and Mr Garcia in Doc 3 are very enthusiastic about electronic devices. It is true that their credibility might suffer from some bias but that bias might well be outweighed by their expertise, both as teachers and as teachers responsible for ICT. They both also have some ability to understand the local issues having conducted some trials. It is widely accepted that students are more likely to engage with learning activities if they find them fun. Maria in Doc 3 states that she much prefers her laptop to pen and paper, the student in Doc 4 corroborates this and we all know how much time teenagers spend, voluntarily, using electronic devices. Therefore, if what is widely accepted is true then these devices ought to increase learner engagement. The newly qualified teacher quote in Doc 4 suggests that this technology might even motivate learners to engage with more traditional classroom activities.	**27**

Question	Answer	Marks
4	The devices need to be the student's own. Some might argue, as the year 7 parent in Doc 4 does, that the devices do not need to belong to the student – a cheaper solution would be for the school to own them and teachers could book them for specific lessons. This solution is likely to prove much less flexible – the recently qualified teacher in Doc 4 might want them every lesson and is contrary to the opinion of the educational expert in Doc 3 who suggests that children are more likely to use a device well if it is theirs. The education writer in Doc 4 states that quick feedback is a very effective teaching strategy. Doc 1 describes how teachers can set assignments to be completed on devices then mark and give feedback very quickly. Student's using their own devices would facilitate this assignment-feedback cycle and, if the educational writer is correct, enhance the students' learning. Cost could be a problem and this is mentioned by Doc 1 and 3. The problem is not insurmountable however. Although the response to the cost issue by Doc 1 is weak, the suggestion that it might be possible for schools to lend students older devices might be an effective solution. Furthermore, costs are continually reducing and people often forget that textbooks and school stationery also cost money. At first glance the evidence from Doc 2 could be used to challenge assertions about educational improvements. However, the first study appears to be in the very specific setting of a military academy, presumably for older students. The results are, therefore, not likely to be generalizable to the majority of schools. The London School of Economics study looked at banning, specifically, mobile phones and not the use of other electronic devices such as tablets and laptops. Students once practised writing using chalk and slate. We made the change from that to pen and paper. Perhaps it is now time to move away from pen and paper towards the modern equivalent. The year 8 parent in Doc 4 undermines his or her own concern by using the word 'traditional' – perhaps the 'traditional' skills are not that important any more.	

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Question	Answer	Marks
4	*Argument to challenge (746 words)* The use of electronic devices in lessons is likely to be detrimental to education. Of all the documents, only Document 2 has any real credibility and both studies cited in Document 2 show negative effects of electronic devices on education. Both studies are conducted by universities with, presumably, high levels of expertise and ability to know, as well as a vested interest to present results that are hard to criticise. The studies were conducted in very different educational institutions, which strengthens the conclusion that 'using computers in class harms results. It is true that one study focussed specifically on phones but there is very little real difference between a modern phone and a tablet computer. No document offers any direct evidence for an improvement in educational attainment. Those that appear to believe that such improvements will happen suffer from a lack of credibility in terms of bias and vested interest. Indeed, it is telling that neither elaborates on the results of the 'trials' they mention. The pie chart in Doc 3 and Graph A in Doc 5 appear to be consistent with teacher enthusiasm for the idea of increasing the availability of electronic devices. However, the pie-chart is seriously flawed, as discussed in question 3 and Graph A makes no mention of how frequently each of these activities might be undertaken and whether they are any better than the traditional learning activities. It is obvious from a range of documents that students are distracted from their studies by these devices. The experienced teacher in Doc 4 and Maria in Doc 3 both mention distractions and both have some credibility in the claims they make in terms of expertise and ability to know. Graph B in Doc 5 is interesting in this regard. Like graph A there is no indication about how much time any individual student spends engaging in any of these activities. It is clear from the graph that students are using the devices for non-educational activities and it is possible, for example, that a little over 30% of students have read an e-book once but that around a quarter of students spend long periods of every lesson social networking. If, as seems likely, the students were asked these questions by a teacher, then their answers might have artificially favoured the more educational activities in fear of some sort of punishment should they admit to too much non-productive use of their devices. If more time is spent using electronic devices in lessons then less time must be spent doing other learning activities, as mentioned in Doc 4. There is no evidence in the Documents that these activities are any less valuable than those that might replace them. The argument about needing to move with the times and develop new skills, mentioned in Doc 1, is self-defeating. As the year 6 parent in Doc 6 suggests - using a Chromebook in 2018 will require a different set of skills from using whatever technology exists in 2048.	

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Question	Answer	Marks
4	It is clear from the reasons stated above that the benefits of these devices have not been demonstrated and, therefore the cost to parents is not justified. Even if it could be demonstrated that these devices did improve education, there is still no need for students to carry their own device. The suggestion given by the parent in Doc 4 about the school owning the devices and teachers booking them for individual lessons seems perfectly feasible. That way teachers can plan their more effective use and the costs to parents are much less. One of the main arguments for ICT in lessons is that it engages students – students find their use fun and exciting. This is mentioned by Maria in Doc 3, and the recently qualified teacher and student in Doc 4. However, it is likely that the technology engages students precisely because it is novel. If students are expected to carry a tablet to every lesson and use it in every lesson then the novelty will wear off. Far better to have access to these devices on occasion, when the use is planned by the teacher. That way their use remains novel and hence exciting. The positive effects on learning of using electronic devices have not been demonstrated by the documents. The costs of students owning their own device, mentioned in Docs 1, 3 and 4 and not effectively countered by any, are high. Therefore, the routine use of electronic devices by students in lessons should not be encouraged.	

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Level	Structure*		Use of documents		Quality of argument	
	• Conclusion (MC) • Intermediate conclusions (ICs) • Strands of reasoning • Examples or evidence • Original analogy • Hypothetical reasoning		• Reference to documents • Evaluation of documents • Comparison of documents (corroboration or contradiction) • Inference from documents		• Comprehensive and persuasive argument • Logical order of reasoning • Relevant material • Treatment of counter-positions • Absence of flaws and weaknesses • Non-reliance on rhetorical devices	
3	Excellent use of structural elements: • Precise conclusion • Multiple valid clear ICs that support the MC • Multiple clear strands of reasoning • Some effective use of other argument elements to support reasoning	7–9	Excellent use of documents: • Judicious reference to at least three documents • Multiple valid evaluative points, clearly expressed and used to support reasoning • Some comparison of or inference from documents	7–9	Excellent quality of argument: • Sustained persuasive reasoning • Highly effective order of reasoning • Very little irrelevant material • Key counter-position(s) considered with effective response • Very few flaws or weaknesses • No gratuitous rhetorical devices	7–9
2	Good use of structural elements: • Clear conclusion • More than one valid IC • Some strands of reasoning • Some use of other argument elements	4–6	Good use of documents: • Relevant reference to at least two documents • At least two evaluative points used to support reasoning • May be some comparison of or inference from documents	4–6	Good quality of argument: • Reasonably persuasive reasoning • Unconfused order of reasoning • Not much irrelevant material • Some counter-position(s) considered with some response • Not many flaws or weaknesses • May be some reliance on rhetorical devices	4–6
1	Some use of structural elements: *There may be:* • Conclusion • Implied ICs • Some strands of reasoning • Some use of other argument elements	1–3	Some use of documents: *There may be:* • Reference, perhaps implicit, to a document • Some evaluation of a document • Some comparison of or inference from documents	1–3	Some quality of argument: *There may be:* • Some support for the conclusion • Some order to the reasoning • Some relevant material • Some counter-position(s) considered with some response	1–3
0	No creditable response	0	No creditable response	0	No creditable response	0

*Cap mark for Structure at 6 if no conclusion given

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