Cambridge Assessment
International Education

Cambridge Pre-U

GLOBAL PERSPECTIVES & INDEPENDENT RESEARCH 9777/01

Paper 1 Written Paper **May/June 2022**

MARK SCHEME

Maximum Mark: 30

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 May/June 2022 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

This document consists of **12** printed pages.

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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.

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.

Social Science-Specific Marking Principles
(for point-based marking)

1	**Components using point-based marking:**

- Point marking is often used to reward knowledge, understanding and application of skills. We give credit where the candidate's answer shows relevant knowledge, understanding and application of skills in answering the question. We do not give credit where the answer shows confusion.

From this it follows that we:

a DO credit answers which are worded differently from the mark scheme if they clearly convey the same meaning (unless the mark scheme requires a specific term)

b DO credit alternative answers/examples which are not written in the mark scheme if they are correct

c DO credit answers where candidates give more than one correct answer in one prompt/numbered/scaffolded space where extended writing is required rather than list-type answers. For example, questions that require *n* reasons (e.g. State two reasons …).

d DO NOT credit answers simply for using a 'key term' unless that is all that is required. (Check for evidence it is understood and not used wrongly.)

e DO NOT credit answers which are obviously self-contradicting or trying to cover all possibilities

f DO NOT give further credit for what is effectively repetition of a correct point already credited unless the language itself is being tested. This applies equally to 'mirror statements' (i.e. polluted/not polluted).

g DO NOT require spellings to be correct, unless this is part of the test. However spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. Corrasion/Corrosion)

2 **Presentation of mark scheme:**

- Slashes (/) or the word 'or' separate alternative ways of making the same point.
- Semi colons (;) bullet points (•) or figures in brackets (1) separate different points.
- Content in the answer column in brackets is for examiner information/context to clarify the marking but is not required to earn the mark (except Accounting syllabuses where they indicate negative numbers).

3	**Calculation questions:**
	• The mark scheme will show the steps in the most likely correct method(s), the mark for each step, the correct answer(s) and the mark for each answer
	• If working/explanation is considered essential for full credit, this will be indicated in the question paper and in the mark scheme. In all other instances, the correct answer to a calculation should be given full credit, even if no supporting working is shown.
	• Where the candidate uses a valid method which is not covered by the mark scheme, award equivalent marks for reaching equivalent stages.
	• Where an answer makes use of a candidate's own incorrect figure from previous working, the 'own figure rule' applies: full marks will be given if a correct and complete method is used. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.

4	**Annotation:**
	• For point marking, ticks can be used to indicate correct answers and crosses can be used to indicate wrong answers. There is no direct relationship between ticks and marks. Ticks have no defined meaning for levels of response marking.
	• For levels of response marking, the level awarded should be annotated on the script.
	• Other annotations will be used by examiners as agreed during standardisation, and the meaning will be understood by all examiners who marked that paper.

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Annotation	Meaning
✔	Use a ✓ to indicate the separate marks given in **Q1**
L1 or L2 or L3	an overall level - Level 1 or Level 2 or Level 3 at the end of Q2 and Q3
ILL	Illustration (Not Assessment or Evaluation) where candidate quotes or refers to passage, relevant to their assessment/evaluation/comparison
A	Assertion (unsupported statement of assessment or candidate's opinion)
+ or –	Use in Q2 to indicate strength or weakness of Document 1 addressed by candidate. Use in Q3 to indicate strengths or weaknesses of the two documents. (more convincing, less convincing)
=	Use in Q3 to indicate similarities in strengths/weaknesses of two arguments, to support the ways in which neither is more convincing than the other/ they are equally convincing.
JU	Judgement In Q2 at the end Q3 at the end, also in the margin where there are interim judgements
C	Comparison
EVAL	Evaluation
ND	Needs developing
NAQ	Not answering the question
On page comment	Space for summative comment if needed – particularly where an answer has just achieved a level.
SEEN	Use on any blank pages or extra sheets to indicate that these continuation sheets have been looked at. Also, where a candidate has written relevant material, but no other annotations are appropriate, to indicate that the work has been read.

Question	Answer	Marks	Guidance
1a	**Identify and explain <u>one</u> way smart buildings enhance the lives of those who live in them as given by the author in Document 1.** Candidates may consider any of the following: • Smart buildings maximise occupants' comfort/safety/security* (explain how they feel/how it is done) • Smart buildings are kept clean and/or safe (impact on occupant/ how it is done) • Smart buildings are constantly monitored for faults. (impact on occupant) Candidates should state how they feel/ how their lives are improved, explaining their feelings or how their lives are improved or how the improvement is achieved. **Do not credit** answers that are not clearly about enhancements to occupants' lives. • Smart buildings promote savings. (the development makes it clear that this is a benefit to the building, unclear what is meant by proper action can take place. **Do not credit** explanations of how managers are affected.	2	Award ONE mark for **ONE** example identified. **For Identification: Do not** reward information that is not drawn from the Document. *Accept any combination (one, two or three) as one answer. Award ONE mark for any **relevant** explanation drawn from the document. **Note:** the question asks how the *smart buildings enhance the lives of those who live in them* … so **either** the ID **or** the explanation, **or both**, must address this

Question	Answer	Marks	Guidance
1(b)	**Identify and explain <u>two</u> ways AI can help building managers to carry out their work as given in Document 1.** Candidates may consider the following: • AI can monitor individual water consumption, which is nearly impossible for building managers to do manually. • AI can notify building managers when cleaning needs to be done. • AI can constantly monitor buildings for faults, which is an ordeal for managers in complex buildings. Candidates may explain what AI does or how this helps the manager. However, *impact on the manager* **must** appear **either** in the identification **or** the explanation **or both** – as this is the focus of the question. **[2 × 2]**	4	Award ONE mark each for up to **<u>TWO</u>** different ways. Award ONE mark each for up to two different relevant explanations. Accept any relevant and logical explanations. Candidates may quote examples directly from the text or paraphrase. Candidates may extrapolate other examples from the text and should be credited for doing so. Do **not** reward **identified** information that is not drawn from the Document. There may be some overlap with 1a, however, the focus of the explanation should be on the impact **on the manager and not the occupant.**

Question	Answer	Marks	Guidance
2	**Assess the strengths and weaknesses of the author's argument in Document 1.** The candidate may consider aspects such as: • Author's expertise and provenance of publication. (S) • Recent date (S) • Details explained so that the argument is clear (How AI makes buildings smarter/ how water usage is measured and what impact that may have) (S) • Examples to support claims made. (S) • Some unexplained details (IoT) vague explanations (how data is collected) (W) lack of examples (e.g. 'comfort' is mentioned twice in the document but never developed)' (W) • Specific figure for water usage. (S) • No other figures presented. (W) • Lack of attribution / named sources. (W) • Lack of balance in the document (no negatives of AI are mentioned at all so there is possibility of bias or vested interest, weakening the argument) (W) • Extent to which the conclusion is supported by the evidence provided (S or W depends on candidate's view)	10	No set answer is expected, and examiners should be flexible in their approach. Some candidates may argue that the argument is very strong, citing strengths, whilst others may be less convinced highlighting more of the weaknesses. There is no requirement to use technical terms to access any level and candidates will NOT be rewarded for their use unless they link them directly to the demands of the question. Responses should focus on the argument put forward in Document 1. • At Level 3 candidates must consider both the strengths and weaknesses. • At Level 2 there is likely to be imbalance, with most of the answer focusing on the weakness of the arguments, although some answers may focus largely on the strengths. Candidates who focus on only the strengths or weaknesses can still achieve any mark within this level depending upon the quality of the evaluation. • At Level 1 it is likely that candidates will consider only either the strengths or weaknesses. At this level candidates' answers are likely to be descriptive in approach, particularly at the lower end, if there is evaluation it may be very generalised. **Note: You should refer to the table of Level descriptors provided at the end of the Mark Scheme**

Question	Answer	Marks	Guidance
3	**To what extent is the author's argument in Document 2 stronger than the author's argument in Document 1?** The candidate may focus on some of the following: **Argument in Doc 2 is stronger:** Doc 2 / van Vlaanderen presents a structured argument that builds logically to the conclusion. (Doc 1/ Joshi has a less well-supported conclusion) Doc 2 / van Vlaanderen writes a more balanced argument as presents benefits of smart buildings and the technology as well as the risks of cyber-attack. (includes motivations of different groups) (Doc 1/ Joshi only looks at benefits) Doc 2 / van Vlaanderen provides actual examples of systems in use (building in Las Vegas / Marriott Hotels / supermarket car park) (Doc 1/ Joshi provides generalised illustration rather than specific examples) Doc 2 / van Vlaanderen explains in detailed steps how a cyber attack can be carried out. (Doc 1/ Joshi provides some explanation, but much is vague and general) Doc 2 / van Vlaanderen provides more figures to support the argument. **The argument in Doc 1 is stronger / Doc 2 is weaker** Doc 2 / van Vlaanderen: makes some unsupported comments 'these buildings seem risk-free' 'already carrying out siegeware attacks' – with no evidence. Doc 1/ Joshi supports comments with explanation. Doc 2 / van Vlaanderen provides no evidence that the cybercrime described has actually happened. Readers are led to believe the problem is widespread, but no evidence is given to support this view (a slippery slope)	14	Responses should focus on key arguments and evidence in both documents in order to compare alternative perspectives and synthesise them in order to reach a reasoned judgement. In order to assess whether Document 2 is more convincing than the argument in Document 1 candidates should consider not only the content of the Documents, but critically assess the arguments put forward through a consideration of issues such as the nature of the passages, purpose and language. • At Level 3 candidates will reach a sustained judgement about the view in the question and the extent to which this is true. In order to do this, they will have covered a significant range of issues, and evaluated them clearly. • At Level 2 there will be some evaluation and comparison, but it will be either poorly developed or limited in the areas covered. • At Level 1 there will be very little evaluation, comparison will be of the content and candidates may simply describe the documents or identify areas of similarity and difference, with little link to the question.

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Question	Answer	Marks	Guidance
3	Doc 2 / van Vlaanderen uses may/could, more frequently so appears less clearly sure of ground. Doc 1/ Joshi is more definite. Doc 2 / van Vlaanderen appeals to panic and fear (emotion) in reference to the detailed cybercrime attack. (Doc 1/ Joshi does not appeal to emotion in use of examples/explanation) **Neither is stronger or weaker** Both are recent Both have expertise Both show understanding and knowledge of the subject and explain how the technology works Neither provides sources for information presented **Judgement** The candidate may conclude that Doc 1 is stronger, or that Doc 2 is stronger, or that they are different but not clearly stronger or weaker. The judgement should follow logically from the points made.		

Appendix 1: Level descriptors for Q2

Level 3 8–10 marks	Sustained evaluation of strengths and weaknesses of arguments and evidence, critical assessment with explicit reference to how flaws and counter argument support the argument. Highly effective, accurate and clearly expressed explanation and reasoning; clear evidence of structured argument/discussion, with conclusions reached/explicitly stated in a cogent and convincing manner.
Level 2 5–7 marks	Some evaluation of strengths and weaknesses of arguments and evidence, but evaluation may focus on one aspect; assessment of flaws etc. may not link clearly to the argument. Effective and generally accurate explanation and reasoning; some evidence of structured argument/discussion; conclusions may not be explicitly stated or link directly to the analysis.
Level 1 1–4 marks	Little or no evaluation of strengths and weaknesses, although flaws etc. may be identified. Level of communication is limited; response may be cursory or descriptive; communication does not deal with complex subject matter

Appendix 2: Level descriptors for Q3

Level 3 11–14 marks	Answers at this level will demonstrate a sustained judgement about the view. There will be sustained evaluation of alternative perspectives; critical assessment with explicit reference to key issues raised in the passages leading to a reasoned and sustained judgement. Highly effective, accurate and clearly expressed explanation and reasoning; clear evidence of structured argument/ discussion, with conclusions reached/explicitly stated in a cogent and convincing manner.
Level 2 6–10 marks	Answers at this level will be more than just a comparison of the two documents; there will be some evaluation, but this will not be sustained and may focus on one perspective; assessment may not link key reasons and evidence clearly to the perspective or to the reasoned judgement. Effective and generally accurate explanation and reasoning; some evidence of structured argument/discussion; conclusions may not be explicitly stated or link directly to analysis.
Level 1 1–5 marks	Answers at this level will describe a few points and there will be little or no evaluation of perspectives, although some relevant evidence or reasons may be identified. If there is any judgement it will be unsupported or superficial. Level of communication is limited; response may be cursory or descriptive; communication does not deal with complex subject matter.