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**GLOBAL PERSPECTIVES AND RESEARCH**

**9239/13**

Paper 1 Written Examination

**May/June 2019**

MARK SCHEME

Maximum Mark: 30

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**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.

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

**PUBLISHED****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.

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Question	Answer	Marks	Guidance
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**Note**

The mark scheme cannot cover all points that candidates may make for all of the questions. In some cases candidates may think of very strong answers which the mark scheme has not predicted. These answers should be credited according to their quality. If examiners are in any doubt about an answer they should contact their Team Leader or Principal Examiner. For answers marked by levels of response:

- (a) Mark grids describe the top of each level.
- (b) **To determine the level** – start at the highest level and work down until you reach the level that matches the answer.
- (c) **To determine the mark within the level**, consider the following:

Descriptor	Award mark
Consistently meets the criteria for this level	At top of level
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
On the borderline of this level and the one below	At bottom of level

**Assessment Objectives for Global Perspectives**

<b>AO1</b> <b>Research, analysis and evaluation</b>	<ul style="list-style-type: none"> <li>• analyse arguments to understand how they are structured and on what they are based</li> <li>• analyse perspectives and understand the different claims, reasons, arguments, views and evidence they contain</li> <li>• synthesize relevant and credible research / text in support of judgements about arguments and perspectives</li> <li>• critically evaluate the strengths, weaknesses and implications of reasoning in arguments and overall perspectives</li> <li>• critically evaluate the nature of different arguments and perspectives</li> <li>• use research / text to support judgements about arguments and perspectives</li> </ul>
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Question	Answer	Marks	Guidance
1	<p><b>Identify and explain <u>three</u> reasons why technology might replace human workers, as given by the authors of Document 1. You should give <u>three</u> different explanations.</b></p> <p><b>Credit 2 marks each</b>, up to 6 marks, for each correct developed explanation.</p> <p>Credit correct versions of the following:</p> <ul style="list-style-type: none"> <li>Robots and intelligent machines can perform routine jobs more <b>cheaply</b> ✓ (R). So it is more productive for businesses to use machines rather than human workers / won't need to hire as values of human labour falls / will use more machines as value of human labour falls ✓</li> <li>In the virtual economy <b>computers / robots do business only / work only with other computers / robots</b>.(R) ✓ This is because human beings are not necessary for this process / Humans are no longer needed as computers can simply communicate with themselves. ✓</li> <li>The smart machines can do some jobs <b>better than humans / outperform humans</b>.(R) ✓ This is because they have high IQs / greater information storage capacity / better skills / do jobs people cannot. ✓</li> </ul> <p>Explanations may be treated as identification where appropriate.</p> <p><b>Credit 1 mark where only the reason is given</b></p> <ul style="list-style-type: none"> <li>Robots and intelligent machines can perform the tasks more cheaply. ✓</li> <li>In the virtual economy computers do business only with other computers. ✓</li> <li>The smart machines can do some jobs better than humans. ✓</li> </ul>	3 × (1+1)	<p><b>Credit 0 marks</b></p> <ul style="list-style-type: none"> <li>for a paraphrase of the first paragraph which sets the scene without explanation</li> <li>for simply giving examples e.g. The Sedasys machine sedates patients.</li> <li>for answers taken from the candidate's own knowledge.</li> <li>for answers with no creditworthy material.</li> </ul>

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<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
1	Or  <b>Where the correct reason and explanation is wholly taken from the text without any synthesis.</b>		

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Question	Answer	Marks	Guidance
2	<p><b>Assess the strengths and weaknesses of the evidence that the authors give in Document 1.</b></p> <p><b>Use the levels based marking opposite to credit marks.</b> No set answer is expected and examiners should be flexible in their approach. Candidates may include some of the following:</p> <p><b>Strengths</b> The following strengths of evidence all strengthen the support for the authors' conclusion that machine intelligence will leave people without employment:</p> <ul style="list-style-type: none"> <li>• <b>Uses evidence from sources expert in their fields</b> – <i>Henry Adams, Foxconn's CEO, US FDA, UK National Academy of Science</i> which increases its authority.</li> <li>• <b>Uses a range of global evidence</b> – <i>Foxconn in China, US FDA, and UK NAS</i>, which gives some international support for the claims.</li> <li>• <b>Uses precise, relevant statistics</b> – from <i>Henry Adams</i> to support <i>historic technological progress</i>, from <i>Foxconn</i> to support the <i>speed of technology</i>.</li> <li>• <b>Uses relevant examples</b> – to illustrate present replacement of workers – <i>Foxconn's</i> projected addition of <i>1 million robotic workers; Sedasys machine replacing anesthesiologists; computers outperforming radiologists</i>.</li> <li>• <b>Uses historical perspective in the evidence</b> – from <i>Henry Adams</i> about <i>historic technological progress</i>, which gives context to judge the significance of more rapid rise in the new technology.</li> <li>• <b>Uses evidence to challenge possible criticisms</b> – of <i>doubt at the speed of workers being replaced; that technological progress has created new opportunities for employment; that smart machines can have an IQ above a person of average intelligence</i>. This gives the appearance of a balanced argument.</li> </ul>	12	<p>Use the levels based marking grid below and the indicative content in the left-hand column to credit marks.</p> <p><b>For each bullet give a level (that can include split levels e.g. L2 / L1) to inform the overall level and mark within the available range. These should be placed at the end of the answer with the overall level in the right-hand margin. (Use X for Level 0)</b></p> <p><b>Note: Level 3 involves the impact of the evidence upon the claim – a key characteristic</b></p> <p>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 assessments made.</p> <p><b>Level 3</b> <span style="float: right;"><b>9–12 marks</b></span></p> <ul style="list-style-type: none"> <li>• <b>Both</b> strengths and weaknesses of evidence are assessed.</li> <li>• Assessment of evidence is <b>sustained</b>.</li> <li>• Assessment explicitly includes the <b>impact</b> of specific evidence upon the claims made.</li> <li>• Communication is <b>highly effective</b> – explanation and reasoning <b>accurate</b> and <b>clearly</b> expressed.</li> </ul> <p><b>Level 2</b> <span style="float: right;"><b>5–8 marks</b></span></p> <ul style="list-style-type: none"> <li>• Answers focus more on <b>either</b> the strengths <b>or</b> weaknesses of the evidence, although <b>both</b> are present / identified. <b>Note: maximum 6 marks if both not present.</b></li> <li>• Assessment identifies strength <b>or</b> weaknesses of evidence with little explanation.</li> </ul>

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2	<ul style="list-style-type: none"> <li>• <b>Expertise of the authors to produce informed evidence</b> – both authors have experience in the high-technology industry and business which is likely to help them to make informed judgements that can be trusted.</li> <li>• <b>Vested interest of authors</b> – to produce accurate evidence, as both authors are writers in the public eye so need to report accurately to maintain public confidence.</li> </ul> <p><b>Weaknesses</b> The following weaknesses of evidence all weaken the support for the authors' conclusion that machine intelligence will leave people without employment:</p> <ul style="list-style-type: none"> <li>• <b>Uses unsourced key evidence</b> – computer memory increase at 60% <i>a year</i>, semiconductor technology <i>at a rapid rate for more than 50 years</i>, which limits the authority of the evidence.</li> <li>• <b>Much of the argument relies on projections from evidence</b> – <i>By 2025 these machines will have an IQ greater than 90% of the U.S. population and over ten years would put another 50 million jobs within reach of smart machines.</i> Speculations can be inaccurate as circumstances change.</li> <li>• <b>Uses evidence that relies on trends continuing</b> – <i>By 2025 ...would put another 50 million jobs within reach of smart machines.</i> If there is a ceiling to the intelligence that machines can be developed to have, this would weaken the predicted evidence of 50 million jobs being potentially replaced.</li> <li>• <b>Uses a limited perspective of evidence</b> – drawn only from the <i>developed world US, UK and China.</i> It does not discuss areas where wages are cheaper or where technology has not reached.</li> </ul>		<ul style="list-style-type: none"> <li>• Assessment of evidence is relevant but <b>generalised, not always linked</b> to specific evidence or specific claims.</li> <li>• Communication is <b>accurate</b> – explanation and reasoning is <b>limited</b>, but <b>clearly</b> expressed.</li> </ul> <p><b>Level 1</b> <span style="float: right;"><b>1–4 marks</b></span></p> <ul style="list-style-type: none"> <li>• Answers show <b>little</b> or <b>no</b> assessment.</li> <li>• Assessment, if any, is <b>simplistic</b>.</li> <li>• Evidence may be <b>identified</b> and weaknesses may be <b>named</b>.</li> <li>• Communication is <b>limited</b> – response may be <b>cursory</b> or <b>descriptive</b>.</li> </ul> <p><b>Credit 0 marks</b> where there is no creditable material. Use X in the levels summary</p>



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Question	Answer	Marks	Guidance
2	<ul style="list-style-type: none"> <li>• <b>Uses evidence that may not be typical</b> – limited to two economies that are experts in technology, <i>the US</i> and <i>China</i>. If these are not typical of other economies, such as developing economies, it limits the support for <i>humans without employment</i>. Similarly these economies have a plentiful workforce. If other countries have dwindling workforce the impact would not have a <i>major effect</i>.</li> <li>• <b>Uses examples that may not be typical</b> – If the examples from <i>anesthesiology</i> and <i>radiology</i> are not typical of other areas of medicine, it limits the support for <i>leaving humans without employment</i>.</li> <li>• <b>The evidence presented in predictions contains assumptions</b> – that the job done by the million Foxbot robots could have been done by the same number of human workers; that the current rate in the rise of machines' IQ can continue.</li> <li>• <b>Bias</b> – Both authors write in the area of high-technology and business, so there may be a natural bias towards the importance of developments in this field which would lead them to overestimate the significance of its effects and produce higher figures in their predictive evidence.</li> </ul>		

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Question	Answer	Marks	Guidance
3	<p><b>The authors of Documents 1 and 2 present different views about the effects of future technology in the workplace.</b></p> <p><b>To what extent is the author’s argument in Document 2 more convincing than that of the authors in Document 1?</b></p> <p>No set answer is expected and examiners should be flexible in their approach. Candidates may include some of the following:</p> <p><b>More Convincing</b></p> <ul style="list-style-type: none"> <li>• <b>Weakens the more sweeping statement of Davidow &amp; Malone (Doc1)</b> – Nohara’s conclusion (Doc 2) that robots <i>aren’t a threat</i> in Japan weakens Davidow &amp; Malone (Doc1) more general conclusion about <i>leaving humans</i> in general without employment.</li> <li>• <b>More personal first hand evidence</b> – Nohara (Doc 2) uses the experience and views of two workers who welcome the technology and businesses currently using the technology; whereas Davidow &amp; Malone (Doc1) provide a more theoretical argument.</li> <li>• <b>Depends less on speculation</b> – Nohara (Doc 2) looks at what is actually happening in Japan as well as predictions; whereas Davidow &amp; Malone (Doc1) base their argument about intelligent machines upon speculation.</li> <li>• <b>More immediate evidence</b> – Nohara (Doc 2) argues about the effects in Japan now with a 5 year plan; whereas Davidow &amp; Malone (Doc1) use projections by 2025, based on trends in increased intelligence in smart machines continuing at the same rate.</li> </ul>	12	<p>Use the levels-based marking grid below and the indicative content in the left-hand column to credit marks.</p> <p><b>For each bullet give a level (that can include split levels e.g. L2 / L1) to inform the overall level and mark within the available range. These should be placed at the end of the answer with the overall level in the right-hand margin. (Use X for Level 0)</b></p> <p>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 assessments made.</p> <p><b>Level 3</b> <span style="float: right;"><b>9–2 marks</b></span></p> <ul style="list-style-type: none"> <li>• The judgement is <b>sustained</b> and <b>reasoned</b> throughout.</li> <li>• Alternative perspectives have sustained assessment.</li> <li>• Critical evaluation is of <b>key</b> issues raised in the passages and has <b>explicit</b> reference.</li> <li>• Explanation and reasoning is <b>highly effective</b>, accurate and clearly expressed.</li> <li>• Communication is <b>highly effective</b> – clear evidence of a structured cogent argument with conclusions explicitly stated and directly linked to the assessment.</li> </ul>

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Question	Answer	Marks	Guidance
3	<p><b>Less convincing</b></p> <ul style="list-style-type: none"> <li>• <b>Less global</b> – Davidow &amp; Malone (Doc1) put forward a more general argument; whereas Nohara (Doc 2) considers particular workforce situations which are specific to Japan and may not be representative of elsewhere in the world.</li> <li>• <b>Less consideration of the counter arguments</b> – Davidow &amp; Malone (Doc1) directly respond to four possible criticisms about speed, other human opportunities, impossibility of smart advances and estimates; whereas Nohara (Doc 2) responds only to the issue of predicted unemployment.</li> <li>• <b>Less expertise</b> – Davidow &amp; Malone (Doc1) have experience as authors in high-technology and business; whereas Nohara (Doc 2) is an economics reporter who may therefore not see the wider global picture.</li> </ul> <p><b>Neither more or less convincing because the same</b></p> <ul style="list-style-type: none"> <li>• <b>Both look at how machines affect production positively</b> – Nohara (Doc 2) in manufacturing and Davidow &amp; Malone (Doc1) in manufacturing and through smart machines in medicine.</li> <li>• <b>Both look at the increased use of intelligent machines</b> – Nohara (Doc 2) in Japan and Davidow &amp; Malone (Doc1) in China, the US and UK</li> <li>• <b>Both present clear arguments</b> – with a specific conclusion and a structure of reasons.</li> <li>• <b>Both provide sourced evidence</b> – relevant examples and statistics from authorities.</li> </ul>		<p><b>Level 2</b> <span style="float: right;"><b>5–8 marks</b></span></p> <ul style="list-style-type: none"> <li>• Judgement is <b>reasoned</b>.</li> <li>• <b>One perspective may be focused upon for assessment.</b></li> <li>• Evaluation is present but may not relate to key issues.</li> <li>• Explanation and reasoning is <b>generally accurate</b>.</li> <li>• Communication is <b>accurate</b> – some evidence of a structured discussion although conclusions may not be explicitly stated, nor link directly to the assessment.</li> </ul> <p><b>Level 1</b> <span style="float: right;"><b>1–4marks</b></span></p> <ul style="list-style-type: none"> <li>• Judgement, if present, is <b>unsupported</b> or <b>superficial</b>.</li> <li>• Alternative perspectives have little or no assessment.</li> <li>• Evaluation, if any, is <b>simplistic / undeveloped</b>.</li> <li>• Relevant evidence or reasons may be <b>identified</b>.</li> <li>• Communication is <b>limited</b>. Response may be cursory.</li> </ul> <p><b>Credit 0 marks</b> where no creditable material. Use X in the levels summary.</p>

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Question	Answer	Marks	Guidance
3	<p><b>Neither more or less convincing because different</b></p> <ul style="list-style-type: none"> <li>• <b>Different perspectives</b> – Nohara (Doc 2) argues that the technology assists the workforce; whereas Davidow &amp; Malone (Doc1) argue that this technology replaces the workforce. Both could be true in different areas of the world.</li> <li>• <b>Different workforce perspectives</b> – Nohara (Doc 2) argues from the perspective of Japan with a dwindling workforce; whereas Davidow &amp; Malone (Doc1) argue from the perspectives of the US and China which have large workforces.</li> <li>• <b>Different perspectives in time</b> – Nohara (Doc 2) argues about the impact of a specific 5 year plan; whereas Davidow &amp; Malone (Doc1) argue about things that might happen in general by 2025.</li> </ul> <p><b>Judgement</b></p> <p>Candidates should critically assess perspectives and the use of examples and evidence in order to reach a judgement.</p> <p>In doing this they might conclude that Nohara's argument (Doc 2) is stronger because of more first-hand views and a firmer view on what is actually happening in Japan, which weakens the more sweeping conclusion of general risk in Davidow &amp; Malone (Doc1)'s conclusion.</p> <p>Alternatively, they might conclude that overall, despite Davidow &amp; Malone (Doc1)'s more sweeping conclusion, the argument has a wider global scope based on their expertise in business and technology.</p> <p>Credit should be given to any alternative judgement on the basis of the assessment and reasoning e.g. they might conclude that both arguments are equally convincing.</p>		