



**GCE**

**Critical Thinking**

Unit **F504**: Critical Reasoning

Advanced GCE

**Mark Scheme for June 2015**

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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 should be read in conjunction with the published question papers and the report on the examination.

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## Mark Scheme for Question 1

Question			Answer/Indicative content	Mark	Guidance
1	(a)		<b>Identification</b> <ul style="list-style-type: none"> <li>It is an <b>explanation</b>.</li> </ul> <b>Explanation</b> <ul style="list-style-type: none"> <li>It says how the steam engine changed the world.</li> <li>It states the mechanism by which the steam engine changed the world.</li> <li>Infinitely multiplying the power of our muscles is what made it possible for the steam engine to change the world.</li> <li>Reference to "Industrial Revolution" or "associated technologies" is also acceptable</li> </ul>	2	<b>One</b> mark for a correct identification and <b>one</b> mark for a correct explanation.  These marks should be awarded independently – so it is possible to get the explanation mark even if the argument element is wrongly identified.  The explanation must contain a relevant reference to the text but it need not be a direct quotation. Recognisable paraphrases, even poor ones, may be accepted
1	(b)		<b>Identification</b> <ul style="list-style-type: none"> <li>It is a <b>counter-assertion</b>/Do <b>not</b> accept counter-argument/claim</li> </ul> Or <ul style="list-style-type: none"> <li>It is an assertion to be countered.</li> </ul> <b>Explanation</b> <ul style="list-style-type: none"> <li>It contradicts the main argument that digital technology is taking us into a near-perfect world.</li> <li>It implies that technology is not good for everyone, which is the main point of the argument.</li> <li>It challenges the argument that follows in para 7</li> </ul>	2	Same as 1(a)  Textual reference required (see above re paraphrase)

Question			Answer/Indicative content	Mark	Guidance
1	(c)		<p><b>Identification</b></p> <ul style="list-style-type: none"> <li>It is an <b>intermediate conclusion</b>.</li> </ul> <p><b>Explanation</b></p> <ul style="list-style-type: none"> <li>It is supported by the claim that the droids will take our jobs and it supports the main conclusion of the argument.</li> <li>It supports the main conclusion</li> </ul>	2	<p>Same as 1(a)</p> <p>For the explanation mark, there should be a reference to a reason that supports the intermediate conclusion, or a reference to the conclusion which is supported by the IC.</p>

## Marking Grid for Question 2

Marks	Performance Descriptors
Level 4  11–14 marks	<p><b>Accurate judgement</b> about the extent to which the document is an argument.            There is an accurate statement of a <b>plausible</b> main conclusion.</p> <ul style="list-style-type: none"> <li>• There is a strong argument that some <b>key</b> parts of the text (functioning as reasons, IC, CA and RCA, examples, evidence, etc) give support to a stated main conclusion.</li> <li>• Other types of content, which may not indicate argument (eg anecdote, report, scene setting etc) are correctly identified and a justification is given: e.g. 'It is an explanation <u>because</u> ...'.</li> <li>• There is a clear understanding that some features point to the text being an argument, and others point the other way.</li> <li>• There is identification of counter-argument and response to counter-argument</li> </ul>
Level 3  7–10 marks	<p>A <b>somewhat accurate judgement</b> that the document is/isn't an argument            There is consideration of a <b>plausible</b> main conclusion.</p> <ul style="list-style-type: none"> <li>• There is an argument that some parts of the text (functioning as reasons, IC, CA, RCA, examples etc) give support to a stated main conclusion.</li> <li>• Some other types of content, which may not indicate argument, (eg anecdote, report, scene setting etc) are correctly identified.</li> <li>• There may be understanding that some features point to it being an argument and other features point the other way</li> <li>• Candidates who do not recognise that there are some features in the document which point to it being an argument and other features that point the other way should be capped at top Level 3</li> <li>• There may be some evaluation</li> </ul>
Level 2  4–6 marks	<p>There <b>may be a judgement</b> that the document is/isn't an argument            There is consideration of a possible plausible main conclusion but this may be inaccurate</p> <ul style="list-style-type: none"> <li>• There is an argument that some parts of the text do/do not give support to other parts of the text</li> <li>• Other types of content are identified but not correctly eg examples identified as IC's or evidence</li> <li>• Evaluation may be mixed with some analysis</li> </ul>

Marks	Performance Descriptors
Level 1 1–3 marks	<b>No discernible judgement</b> in regard to the argument <ul style="list-style-type: none"><li>• There may be a simplistic statement that some part of the text is/is not a main conclusion:</li><li>• Other argument elements are identified, probably incorrectly.</li><li>• No other type of content is identified.</li><li>• There may be evaluation rather than analysis</li></ul>
Level 0 0 marks	No creditworthy material

## Mark Scheme for Question 2

Question	Answer/Indicative content	Mark	Guidance
2	<p><b>Key points</b></p> <ul style="list-style-type: none"> <li>• There is support for the claim, made in paragraph 1, that society needs to find better ways to ensure that computer-controlled machines are better equipped to make moral decisions, and this could be seen as the main conclusion, or an intermediate conclusion if ‘get going fast’ in paragraph 3 is seen as derived from this.</li> <li>• This claim is supported jointly by the reason in paragraph 4 – ‘Autonomous machines are bound to end up making life-or-death decisions in unpredictable situations’ – and the reason in paragraph 5 – ‘As that happens, they will be presented with ethical dilemmas.’</li> <li>• Paragraph 6 contains a counter-argument with an extended response. The response includes an intermediate conclusion – ‘Autonomous robots could do much more good than harm’ – supported by two reasons – ‘Robot soldiers would not commit war crimes’ and ‘Driverless cars are very likely to be safer than ordinary vehicles.’ (Accept a counter-assertion supported by two examples).</li> <li>• The claim made in paragraph 7 – that society needs to develop ways of dealing with the ethics of robotics – could be seen in a variety of ways. It could be seen as a further conclusion, drawn from the conclusion in paragraph 1, or it could be seen as a different point, conflated with the first one. (Society learning to deal with the ethics of robots is different from giving robots the ability to make moral judgements.)</li> <li>• The specific recommendations made in paragraphs 8 and 9 have no justification at all.</li> <li>• Paragraphs 2 and 3 are reporting/scene-setting/examples.</li> </ul>	14	<ul style="list-style-type: none"> <li>• Look at the marking grid.</li> <li>• Credit correct identification of key elements of the reasoning and their roles within Document 2 where this is made in an argument structure diagram.</li> <li>• To achieve Level 4 candidates must recognise both of the following points: <ul style="list-style-type: none"> <li>• Document 2 contains or presents reasoning for a conclusion.</li> <li>• However the conclusion to which it builds is not supported.</li> <li>• If a candidate argues that the document is an argument but a poor one as it is mixed with non-argument elements and identifies reasoning plus other elements, they can access Level 4</li> </ul> </li> </ul>

Question	Answer/Indicative content	Mark	Guidance
	<p align="center"><b>Possible Level 4 analysis for Question 2</b></p> <p align="center"><b>Argument Content Analysed Accurately</b></p> <p><b>Plausible MC:</b> "society needs to find better ways to ensure that computer-controlled machines are better equipped to make moral decisions" (could be seen as IC to MC outlined below) Para 1</p> <p><b>Other plausible MC:</b> "Society needs to develop ways of dealing with the ethics of robotics --- and get going fast" -( could also be characterised as conflated with other MC) Para 7</p> <p><b>R1:</b> "Autonomous machines are bound to end up making life-or-death decisions in unpredictable situations" Para 4</p> <p><b>(Possible IC from R1 :</b> "thereby entering the world of right and wrong") Para 4</p> <p><b>R2:</b> "As that happens, they will be presented with ethical dilemmas" Para 5</p> <p><b>CA: (Accept counter assertion/claim)</b> "One way of dealing with these difficult questions is to avoid them altogether by banning .....at all times" Para 6</p> <p><b>RCA:</b> R1- "Robot soldiers would not commit war crimes"  R2 - Driverless cars are likely to be much safer...." plus <b>evidence</b> of Thrun  IC: "But autonomous robots could do more harm than good"  (This could also be acceptably analysed as: - IC above is the RCA with R1 and R2 as 'examples') Para 6</p> <p align="center"><b>Therefore document contains/presents (is) an argument</b></p> <p><b>Non- Argument Content:</b>  Paragraphs 2/3 are 'reporting/anecdote/scene-setting/examples' (accept any )  Paragraphs 8/9 contain recommendations with no support nor justification  <b>Therefore document as a whole is not an argument</b></p>		



## Marking Grid for Question 3

Marks	Performance Descriptors
Level 4  16–20 marks	<p><b>Thorough and nuanced</b> evaluation. The following are performance characteristics likely to be found at the <b>top</b> of Level 4:</p> <ul style="list-style-type: none"> <li>• Evaluations made correctly identifying <b>both key strengths and weaknesses</b>. There is a reference to the graph</li> <li>• These evaluations are <b>clearly explained</b>.</li> <li>• Other more marginal strengths and weaknesses may also be identified</li> <li>• There is an <b>accurate assessment of the impact</b> of these strengths and/or weaknesses on the overall quality of the reasoning.</li> <li>• The writing is <b>well-structured and precise</b>.</li> </ul>
Level 3  11–15 marks	<p><b>Developed</b> evaluation. The following are performance characteristics likely to be found at the <b>top</b> of Level 3:</p> <ul style="list-style-type: none"> <li>• Evaluations correctly identifying <b>a key strength or weakness &amp;/or some marginal</b> strengths or weaknesses. There will probably be a reference to the graph</li> <li>• These evaluative points are <b>explained</b>.</li> <li>• There is an <b>assessment of the impact</b> of these strengths and /or weaknesses on the overall quality of the reasoning, which may/may not be accurate.</li> <li>• The writing is <b>clear and structured</b>.</li> </ul>
Level 2  6–10 marks	<p><b>Basic</b> evaluation. The following are performance characteristics likely to be found at the <b>top</b> of Level 2:</p> <ul style="list-style-type: none"> <li>• <b>Some</b> strengths or weaknesses are identified. They may not be wholly accurate. There may be no reference to the graph</li> <li>• There is <b>an attempt to explain</b> these evaluative points.</li> <li>• There is a basic attempt at an <b>assessment of the impact</b> of these strengths and weaknesses on the overall quality of the reasoning but it is probably inaccurate.</li> <li>• The writing may lack structure but is otherwise clear. Answers presented in bullet pt or note form are capped at top level 2.</li> </ul>

Marks	Performance Descriptors
Level 1  1–5 marks	<b>Weak</b> evaluation. The following are performance characteristics likely to be found at the <b>top</b> of Level 1: <ul style="list-style-type: none"><li>• There is some <b>attempt to identify</b> one or more strengths or weaknesses which will probably be inaccurate.</li><li>• There is an <b>attempt to explain</b> an evaluative point which is very limited in scope.</li><li>• There is <b>little or no assessment of the impact</b> on the overall quality of the reasoning.</li><li>• The writing is simple.</li></ul>
Level 0  0 marks	No creditworthy material

## Mark Scheme for Question 3

Question	Answer/Indicative content	Mark	Guidance
3	<p><b>Key Strengths</b></p> <ul style="list-style-type: none"> <li>Technology is not just for the rich but also for the poor. The evidence from Robert Jensen (paragraph 7) is strong, insofar as his investigations were repeated in many contexts, making it reasonable to generalise.</li> <li>However, it could also be argued that his evidence relies on a study of villagers who had one occupation (fishing) in one state in India and therefore makes generalising to all developing economies problematic. But it is a fact that the mobile phone has stabilised prices for primary producers in most parts of the world as it ensures market information is widespread, so his study is correct. Such stabilisation of prices prevents unnecessary time/effort wasted by primary producers and also assists the environment by ensuring only enough produce is harvested/collected to maximise profit for producers</li> <li>Claim concerning Industrial Revolution and associated technologies, especially the steam engine, as the driver of massive social change in the world is sound</li> </ul> <p><b>Marginal Strengths</b></p> <ul style="list-style-type: none"> <li>Translation services are now automatic, instantaneous and free which is a great advantage in a globalising world (time and money saving)</li> <li>Google cars and possible driverless trucks may have great advantages in terms of safety, time-saving etc</li> </ul> <p><b>Key Weaknesses</b></p> <ul style="list-style-type: none"> <li>The entire argument hinges on the unsupported claim in paragraph 9, that if fewer people have jobs, 'we are freed up to do other things, and what we are going to do, I am very confident, is reduce poverty and drudgery and misery around the world'. Unless people use their time beneficially, there is no reason to expect a near-perfect future.</li> </ul>	20	<p>Look at the marking grid.</p> <p>Check that the candidate's reasoning supports the conclusion they have come to.</p> <p>The mark scheme cannot cover every possible reasonable point or interpretation that candidates might make so this mark scheme is not an exhaustive list of creditworthy material.</p> <p>Candidates can gain credit for responses which include interpretations and ideas not explicitly made in the mark scheme if they seem reasonable and are argued well. If unsure, contact your Team Leader or Principal Examiner.</p>

Question	Answer/Indicative content	Mark	Guidance
	<ul style="list-style-type: none"> <li>The graph provides poor support for the claim that technology is responsible for the most important development in history. The coincidence of time does not establish a causal connection.</li> <li>The definition of the Social development Index referred to by the graph is so vague as to be meaningless ie SDI "measures ..factors...which enable members of society to achieve their goals and desires"..etc. The goals and desires of societies such as the Romans, Ottomans, Europe of the Industrial revolution are hardly capable of being merged into a single Index.</li> <li>Moreover, there is an unwarranted generalisation from the past, and one type of technology, to the future, and an entirely different type of technology. Even if the technologies of the Industrial Revolution had an extremely positive effect, digital technologies may not do so, Multiplying muscle power is not necessarily analogous to multiplying brain power.</li> </ul> <p><b>Marginal Weaknesses</b></p> <ul style="list-style-type: none"> <li>Translation services (paragraph 2) are a poor example because those employed as translators are not necessarily being put out of work by automatic translation services. (eg simultaneous translators at UN etc)</li> <li>There is poor support for the claim that the economy will not need a lot of human workers. It may be true that digital technology is making some existing jobs redundant but it is also creating new ones. In the Industrial Revolution, too, jobs were created as well as made redundant.</li> <li>Economic prosperity does not always lead to happiness</li> <li>Having lots of free time does not always lead to happiness: in fact it can lead to depression</li> </ul>		

## Marking Grid for Question 4

Marks	Performance Descriptors
Level 4  16–20 marks	<p><b>Nuanced</b> argument. The following are performance characteristics likely to be found at the <b>top</b> of Level 4:</p> <ul style="list-style-type: none"> <li>• The reasoning has a <b>clear and complex structure</b>. The arguments for both sides are well organized, each containing separate strands of reasoning with reasons and intermediate conclusions.</li> <li>• Other argument elements are used <b>effectively</b>. For example, relevant analogies, hypothetical reasoning, apt examples, CA and RCA etc</li> <li>• The cases for both sides of the argument are <b>thorough</b>. There may be questionable assumptions but they do not weaken the thrust of the argument</li> <li>• The <b>judgement is consistent</b> with the arguments on either side and may involve a compromise or qualification</li> <li>• Candidates should use their own ideas as well as those drawn from source</li> <li>• The writing is <b>well-structured and precise</b>.</li> </ul>
Level 3  11–15 marks	<p><b>Developed</b> argument. The following are performance characteristics likely to be found at the <b>top</b> of Level 3:</p> <ul style="list-style-type: none"> <li>• The argument has a <b>clear structure</b>. The proposition and counter-proposition are supported by intermediate conclusions as well as reasons. Other argument elements may help to support, clarify, or illustrate the reasoning.</li> <li>• Both sides of the argument are developed.</li> <li>• The argument may have flaws and there may be some dubious assumptions.</li> <li>• There is a <b>judgment</b> in favour of the proposition or counter-proposition, which may be qualified, possibly unsuccessfully</li> <li>• Any candidate using ideas or evidence drawn <b>from the source alone</b> should be capped at top Level 3</li> <li>• The writing is <b>clear and structured</b>.</li> </ul>
Level 2  6–10 marks	<p><b>Basic</b> argument. The following are performance characteristics likely to be found at the <b>top</b> of Level 2:</p> <ul style="list-style-type: none"> <li>• The argument has a <b>simple structure with some reasons</b>. Other argument elements, if present, add little of value to the reasoning.</li> <li>• There may be arguments for both sides but one side of the argument is likely to be much less well developed than the other.</li> <li>• Parts of the argument on either/both sides have <b>obvious weaknesses, flaws etc</b></li> <li>• Overall <b>judgment</b> may be <b>overstated or is inconsistent</b> with arguments presented.</li> <li>• Any candidate only presenting one side of the argument is capped at top level 2</li> <li>• The writing <b>lacks structure but is otherwise clear</b>. Candidates presenting in bullet pt or note form, however detailed, must be capped at top Level 2</li> </ul>

Marks	Performance Descriptors
Level 1 1–5 marks	<b>Weak</b> argument. The following are performance characteristics likely to be found at the <b>top</b> of Level 1: <ul style="list-style-type: none"><li>• The argument has <b>little structure</b>.</li><li>• There are <b>obvious weaknesses</b>.</li><li>• There is <b>no</b> overall judgment or judgement is <b>unjustified or grossly overstated</b></li><li>• <b>The writing is simple</b>. It may be in bullet point or note form</li></ul>
Level 0 0 marks	No creditworthy material

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