

## 1.6 – Ethical, legal, cultural and environmental impacts of digital technology – Past Exam Questions – Solutions

2022

4		<p><b>Mark Band 3–High Level (6-8 marks)</b> The candidate demonstrates a thorough knowledge and understanding of a wide range of considerations in relation to the question; the material is generally accurate and detailed. The candidate is able to apply their knowledge and understanding directly and consistently to the context provided. Evidence/examples will be explicitly relevant to the explanation. The candidate is able to weigh up both sides of the discussion and includes reference to the impact on all areas showing thorough recognition of influencing factors. <i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p><b>Mark Band 2-Mid Level (3-5 marks)</b> The candidate demonstrates reasonable knowledge and understanding of a range of considerations in relation to the question; the material is generally accurate but at times underdeveloped. The candidate is able to apply their knowledge and understanding directly to the context provided although one or two opportunities are missed. Evidence/examples are for the most part implicitly relevant to the explanation. The candidate makes a reasonable attempt to discuss the impact on most areas, showing reasonable recognition of influencing factors. <i>There is a line of reasoning presented with some structure. The information presented is in the most part relevant and supported by some evidence.</i></p> <p><b>Mark Band 1-Low Level (1-2 marks)</b> The candidate demonstrates a basic knowledge of considerations with limited understanding shown; the material is basic and contains some inaccuracies. The candidate makes a limited attempt to apply acquired knowledge and understanding to the context provided. The candidate provides nothing more than an unsupported assertion. <i>The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.</i></p>	<p>8 AO2 1a (4) AO2 1b (4)</p> <p>The following is indicative of possible factors/evidence that candidates may refer to but is not prescriptive or exhaustive: <b>Indicative Content:</b></p> <p>Legal issues:</p> <ul style="list-style-type: none"> <li>Copyright designs and patents act - can check for plagiarism automatically and highlight posts e.g. videos or images</li> <li>Data protection act - needs to make sure rules are followed so that the AI algorithm does not breach e.g. security</li> <li>Check that materials are all legal</li> <li>User has agreed the terms when signing up so should expect it</li> </ul> <p>Ethical issues:</p> <ul style="list-style-type: none"> <li>Users may not want everything they post monitoring</li> <li>May incorrectly block users/posts</li> </ul> <ul style="list-style-type: none"> <li>Can limit plagiarism</li> <li>Can make sure inappropriate/illegal posts are not published</li> <li>Website will need to tell users what it is doing and they must agree with it</li> <li>Record of monitoring reports may be stored and used for other means</li> <li>Users may feel safer using the website because they know inappropriate material will not be published</li> </ul> <p>Privacy issues:</p> <ul style="list-style-type: none"> <li>Users may feel like they are being watched all the time</li> <li>Terms and conditions may sign away their rights to privacy when using the website</li> <li>People may prefer a computer analysing their posts than people reading them</li> </ul>																								
5	(c)	<p>1 mark for each row</p> <table border="1"> <thead> <tr> <th>Event</th><th>The Data Protection Act (2018)</th><th>Computer Misuse Act (1990)</th><th>Copyright Designs and Patents Act (1988)</th></tr> </thead> <tbody> <tr> <td>A company transmits personal data to another company without the individual's permission</td><td>✓</td><td></td><td></td></tr> <tr> <td>A school publishes their student's addresses on the school website.</td><td>✓</td><td></td><td></td></tr> <tr> <td>The interface for a piece of software is replicated by a rival company</td><td></td><td></td><td>✓</td></tr> <tr> <td>A user leaves a computer logged on and another person leaves them a message on their desktop</td><td></td><td>✓</td><td></td></tr> <tr> <td>A student guesses their teacher's password and accessing computer account</td><td></td><td>✓</td><td></td></tr> </tbody> </table>	Event	The Data Protection Act (2018)	Computer Misuse Act (1990)	Copyright Designs and Patents Act (1988)	A company transmits personal data to another company without the individual's permission	✓			A school publishes their student's addresses on the school website.	✓			The interface for a piece of software is replicated by a rival company			✓	A user leaves a computer logged on and another person leaves them a message on their desktop		✓		A student guesses their teacher's password and accessing computer account		✓		5
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# Sample Paper

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	<p>understanding to the context provided. The candidate provides nothing more than an unsupported assertion.</p> <p><i>The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.</i></p> <p><b>0 marks</b> No attempt to answer the question or response is not worthy of credit.</p>		<p>and Asia)</p> <ul style="list-style-type: none"><li>Toxic waste released into land, ground water, air (in this country and/or abroad, e.g. Africa and Asia)</li><li>Waste of resources</li><li>Precious metals in phones</li></ul> <p><u>Ethical issues</u></p> <ul style="list-style-type: none"><li>Contributes to ill health</li><li>Contributes to the digital divide</li><li>Contributes to social divide</li><li>Problem of confidential data stored on the devices</li><li>Puts social pressure on parents to pay for their children to upgrade</li><li>Puts social pressure on the public to upgrade</li><li>Can lead to bullying of those who cannot afford the latest technology</li><li>Phone manufacturers intentionally designing fragile phones so they need to be replaced more often</li><li>High cost of new devices</li></ul>																													

2021

2	c		benefit e.g. other people can improve the program drawback e.g. cannot charge a fee // other people can use her code	2	Need to be benefit/drawback to developer
3	a		1 mark per bullet to max 2 e.g. <ul style="list-style-type: none"> <li>old devices may just be thrown</li> <li>...increasing pollution / e-waste</li> <li>...that will not degrade</li> <li>new equipment uses up natural resources</li> <li>new equipment increases distribution pollution</li> <li>new devices may run more efficiently</li> <li>other people can use the old ones second hand instead of more resources being used</li> </ul>	2	
3	b		1 mark per bullet to max 2 e.g. <ul style="list-style-type: none"> <li>people may feel their devices are out-of-date</li> <li>increased cost</li> <li>social pressure to keep up-to-date</li> <li>increase digital divide</li> <li>more second hand become available</li> <li>... for people who cannot afford new technology</li> <li>Increase employment where the devices are being built</li> </ul>	2	
4*			<p><b>Mark Band 3–High Level (6-8 marks)</b>  The candidate demonstrates a thorough knowledge and understanding of a wide range of considerations in relation to the question; the material is generally accurate and detailed.  The candidate is able to apply their knowledge and understanding directly and consistently to the context provided. Evidence/examples will be explicitly relevant to the explanation.  The candidate is able to weigh up both sides of the discussion and includes reference to the impact on all areas showing thorough recognition of influencing factors.  <i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p><u>Covers ethical, legal and privacy. Must have positive and negative.</u></p> <p><b>Mark Band 2–Mid Level (3-5 marks)</b>  The candidate demonstrates reasonable knowledge and understanding of a range of considerations in relation to the question; the material is generally accurate but at times underdeveloped.  The candidate is able to apply their knowledge and understanding directly to the context provided although one or two opportunities are missed.  Evidence/examples are for the most part implicitly relevant to the explanation.  The candidate makes a reasonable attempt to discuss the impact on most areas, showing reasonable recognition of influencing factors.  <i>There is a line of reasoning presented with some structure. The information presented is in the most part relevant and supported by some evidence.</i></p> <p><u>Covers at least 2 ethical, legal and privacy. May be only positive or negative.</u></p>	8 AO2 1a (4) AO2 1b (4)	<p>The following is indicative of possible factors/evidence that candidates may refer to but is not prescriptive or exhaustive:</p> <p><b>Indicative Content:</b></p> <p><u>Ethical</u></p> <ul style="list-style-type: none"> <li>Pressure to have the best devices</li> <li>Some students may not have devices</li> <li>Liability for use</li> <li>Students are not working on a level playing field</li> </ul> <p><u>Legal</u></p> <ul style="list-style-type: none"> <li>responsibility for damage</li> <li>may not have restrictions e.g. child safety</li> </ul> <p><u>Privacy</u></p> <ul style="list-style-type: none"> <li>Students may have internet traffic monitored in school</li> <li>School may wish to install software on students' devices</li> <li>Students may use cameras on devices to record other students.</li> </ul>
8			1 mark for each <ul style="list-style-type: none"> <li>Copyright Designs and Patents Act</li> <li>Computer Misuse Act</li> <li>Freedom of Information Act</li> <li>Computer Misuse Act</li> <li>Data Protection Act // GDPR</li> </ul>	5	Allow minor errors in names

2020

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2019

6	a	<p>1 mark per bullet Benefits of not providing physical copies e.g.</p> <ul style="list-style-type: none"> <li>• Less/no plastic/paper/raw materials used in manufacture // no need for packaging // less waste</li> <li>• Less electrical power needed to manufacture</li> <li>• No petrol used to distribute/collect</li> <li>• ...smaller carbon footprint</li> <li>• Fewer disks need to be manufactured</li> <li>• Fewer factory emissions // less pollution</li> <li>• Old versions will be thrown away</li> </ul> <p>Drawbacks of still creating a physical copy (sold online) e.g.</p> <ul style="list-style-type: none"> <li>• Plastic/paper are used in manufacture</li> <li>• Increase in waste</li> <li>• Old versions will be thrown away</li> <li>• Uses petrol / creates emissions to distribute</li> </ul>	2 AO2 1b (2)	<ul style="list-style-type: none"> <li>• Could be read as still physically creating but not putting in shops.</li> <li>• Do not accept more use of computers/electricity to download.</li> </ul>
6	b	<p>1 mark per bullet to max 2 for justification</p> <ul style="list-style-type: none"> <li>• She can sell it for a fee</li> <li>• Protects/copyrights her <b>source code</b></li> <li>• ...so it can't be copied/modified/redistributed</li> </ul>	2 AO2 1b(2)	<ul style="list-style-type: none"> <li>• Accept in reverse for why open source is not appropriate, but do not award same MP twice</li> </ul>