

# Computer Science (9-1)

## 1.6 – Ethical, legal, cultural and environmental impacts of digital

Antony Gallagher

Please note that you may see slight differences between this paper and the original.

Candidates answer on the Question paper.

**OCR supplied materials:**

Additional resources may be supplied with this paper.

**Other materials required:**

- Pencil
- Ruler (cm/mm)

**Duration: Not set**

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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### INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions, unless your teacher tells you otherwise.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Where space is provided below the question, please write your answer there.
- You may use additional paper, or a specific Answer sheet if one is provided, but you must clearly show your candidate number, centre number and question number(s).

### INFORMATION FOR CANDIDATES

- The quality of written communication is assessed in questions marked with either a pencil or an asterisk. In History and Geography a *Quality of extended response* question is marked with an asterisk, while a pencil is used for questions in which *Spelling, punctuation and grammar and the use of specialist terminology* is assessed.
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **78**.
- The total number of marks may take into account some 'either/or' question choices.









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[8]



5 Even though the computer devices they own still work, people often want to buy the most up-to-date models, such as the latest smartphone.

Discuss the impact of people wanting to upgrade to the latest smartphone.

In your answer you might consider the impact on:

- stakeholders
- technology
- ethical issues
- environmental issues

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[8]





7 Fiona is a software engineer. She is creating a new version of a computer game she released three years ago.

Fiona is considering selling the game online and not making it available physically in shops.

Describe the environmental impact of Fiona's decision.

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[2]

- 8 A law company currently use a Local Area Network (LAN) linked to a Wide Area Network (WAN). They want to upgrade their system to utilise cloud storage.

Fig. 2 lists some actions that may take place in the law company's office.

Tick (✓) **one** box in each row to show which legislation applies to each action.

Action	Data Protection Act 2018	Computer Misuse Act 1990	Copyright Designs and Patents Act 1988
Using a picture for the law company's new logo without the original creator's permission.			
A secretary accessing a lawyer's personal email account without permission.			
Making a copy of the latest Hollywood blockbuster movie and sharing it with a client.			
Storing customer data insecurely.			
A lawyer installing a key logger on the secretary's computer.			
Selling client's personal legal data			

to a marketing company without their permission.			
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Fig. 2

[6]

9 William is creating a film for a school project using a digital video camera.

William wants to upload his videos on the Internet and is considering releasing them under a Creative Commons license.

Explain how a Creative Commons license will impact the use of William's videos by other people.

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[3]

10 A law firm currently use a Local Area Network (LAN) linked to a Wide Area Network (WAN).

Fig. 3 lists some actions that may take place in the law firm's office. Tick (✓) one box in each row to show which legislation applies to each action.

Fig. 3

Action	Data Protection Act 1998	Computer Misuse Act 1990	Copyright Designs and Patents Act 1988
Using a picture for the law firm's new logo without the original creators permission.			
A secretary accessing a lawyer's personal email account without permission.			
Making a copy of the latest Hollywood blockbuster movie and sharing it with a client.			
Storing customer data insecurely.			
A lawyer installing a key logger on the secretary's computer.			
Selling clients personal legal data to a marketing company without their permission.			

[6]

11 Apu has a handheld e-book reader that allows him to store and read electronic books.

The manufacturer of the e-book reader provides proprietary software, which Apu can use to transfer the e-book from the CD-ROM to the e-book reader.

(i) Describe what is meant by proprietary software.

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[2]

(ii) Explain **one** advantage to the manufacturer of providing proprietary software instead of open source software.

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[2]

12 Amin buys a new computer with an operating system and some utilities.

Some of the software in Amin's computer is open source.

Describe what is meant by open source software.

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[2]

13 Eve's computer has system software including an Operating System and Utility Software.

Eve uses a computer to write a computer game. She wants people to be able to download her program online.

Eve is choosing between an open source and proprietary licence.

(i) Give **two** benefits to the customers of Eve choosing an open source licence.

1 .....

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2 .....

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[2]

(ii) Give **two** benefits to Eve of choosing a proprietary licence.

1 .....

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2 .....

.....

[2]

14 Layla is an artist. She draws images by hand. The image is then scanned and stored on a computer.

Layla wants to protect her images so they cannot be copied by other people.

Identify which legislation can help protect Layla's images.

..... [1]





## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
1	<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</p>	<p style="text-align: center;">8</p> <p>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>  <u>Ethical</u></p> <ul style="list-style-type: none"> <li>• Replacing people with machines</li> <li>• Loss of jobs</li> <li>• Community will suffer</li> <li>• Work will be completed faster</li> <li>• May find a cure faster</li> <li>• More reliable calculations</li> <li>• Save more lives</li> </ul> <p><u>Legal</u></p> <ul style="list-style-type: none"> <li>• More secure than people seeing personal data</li> <li>• May be at risk if not backed up</li> <li>• May be at risk of threats e.g. hackers</li> <li>• Who is responsible if there is an error</li> </ul> <p><u>Cultural</u></p> <ul style="list-style-type: none"> <li>• Removal of people from workforce</li> <li>• Change in demand for skills</li> <li>• Need people to manage the hardware/software instead of medical expertise</li> <li>• Skills may be lost</li> </ul>

### Mark Scheme

Question		Answer/Indicative content	Marks	Part marks and guidance	
		<p>relevant to the explanation. The candidate makes a reasonable attempt to discuss the impact on most areas, showing reasonable recognition of influencing factors.</p> <p><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></p> <p>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.</p> <p>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></p> <p>No attempt to answer the question or response is not worthy of credit</p>			
		<b>Total</b>	<b>8</b>		

## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
2	<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.</p> <p><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.</p>	<p style="text-align: center;">8</p> <p>AO2 1a (4)</p> <p>AO2 1b (4)</p>	<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>Smartphone users</u></p> <ul style="list-style-type: none"> <li>• Can adversely affect people in this country and abroad:                             <ul style="list-style-type: none"> <li>◦ health issues</li> <li>◦ financially</li> <li>◦ socially</li> <li>◦ culturally</li> </ul> </li> </ul> <p><u>Cultural issues</u></p> <ul style="list-style-type: none"> <li>• Desire/need to own newest device</li> <li>• ...to fit in with peers</li> <li>• May have new features that users require for work/leisure</li> </ul> <p><u>Environmental issues</u></p> <ul style="list-style-type: none"> <li>• The type of devices that are disposed of</li> <li>• Modern phones poorly designed for durability</li> <li>• Phones' hardware not upgradeable/replaceable</li> <li>• Reference to e-waste (people dispose of their devices in landfill even if they are in good working order)</li> <li>• Some equipment is also sent abroad to be disposed of</li> <li>• Leads to excessive landfill (in this country and/or abroad, e.g. Africa and Asia)</li> <li>• Toxic waste released</li> </ul>

## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
	<p>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.</p> <p><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.</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>	8	<p>into land, ground water, air (in this country and/or abroad, e.g. Africa and Asia)</p> <ul style="list-style-type: none"> <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>
	<b>Total</b>	<b>8</b>	

## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
3	<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</p>	<p style="text-align: center;">8</p> <p>AO2 1a (4)</p> <p>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><u>Diagnosis</u></p> <ul style="list-style-type: none"> <li>• Search records faster</li> <li>• Identify range of possibilities based on symptoms</li> <li>• Identify patterns</li> <li>• More accurate/automated/AI equipment</li> <li>• May miss some symptoms, or suggest incorrect results</li> </ul> <p><u>Treating</u></p> <ul style="list-style-type: none"> <li>• AI/Automated surgery e.g. can control from another country</li> <li>• ...access to specialists who are not local</li> <li>• Technology may be subject to hacking</li> <li>• Error in software could have fatal consequences</li> <li>• May have little human interaction</li> </ul> <p><u>Storage</u></p> <ul style="list-style-type: none"> <li>• Centralised storage</li> <li>• All medical people can access all information about patients from all people involved in care</li> <li>• Concerns over privacy and security of communication of data e.g. if central storage is accessed personal information may be</li> </ul>

### Mark Scheme

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		<p>relevant to the explanation. The candidate makes a reasonable attempt to discuss the impact on most areas, showing reasonable recognition of influencing factors.</p> <p><i>There is a line of reasoning presented with some structure.</i></p> <p><i>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></p> <p>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.</p> <p>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></p> <p>No attempt to answer the question or response is not worthy of credit</p>		leaked	
		<b>Total</b>	<b>8</b>		

## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
4	<p>* Points may include:</p> <p><b>Legal</b></p> <ul style="list-style-type: none"> <li>• Data Protection Act</li> <li>• Rules of DPA</li> <li>• Keeping data secure, need for firewall, anti-virus</li> <li>• Methods of restricting access</li> <li>• Intellectual property / copyright / licences</li> </ul> <p><b>Ethical</b></p> <ul style="list-style-type: none"> <li>• Storing and access to personal information</li> <li>• Rules / terms set up before people can join</li> <li>• Consequences for misconduct e.g. cyberbullying</li> <li>• Plagiarism</li> <li>• Communication of inappropriate materials for students / school / teacher</li> <li>• Backing up to preserve / save data</li> <li>• Gaining parental consent for communication online</li> <li>• E-safety</li> <li>• Acceptable use policy</li> </ul>	6	<p><b>High Level Response (5–6):</b></p> <p>A detailed discussion of the ethical and legal issues, with clear explanations that are linked to the scenario. There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p><b>Medium Level Response (3–4):</b></p> <p>A description of some ethical and / or legal issues with some explanation / justification. Material may not be explicitly linked to the context. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p><b>Low Level Response (1–2):</b></p> <p>There is an attempt to describe either a legal issue and / or ethical issue. The points are poorly expressed and / or not related to the context. There is limited, if any, use of technical terms. Errors in grammar, punctuation and spelling may be intrusive.</p> <p><b>Examiner's Comments</b></p> <p>The majority of candidates wrote a reasonable, structured response to this question. The most common legal issues identified were the Data Protection Act and copyright. Some candidates found the ethical issues more difficult to identify, and</p>



### Mark Scheme

Question			Answer/Indicative content	Marks	Part marks and guidance	
					confused these with legal issues. The responses given were often well contextualised to the situation.	
			<b>Total</b>	<b>6</b>		

## Mark Scheme

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5	<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.</p> <p><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</p>	<p>Enter text here.</p> <p style="text-align: center;">8</p>	<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>Stakeholders</p> <ul style="list-style-type: none"> <li>• Can adversely affect people in this country and abroad: <ul style="list-style-type: none"> <li>◦ health issues</li> <li>◦ financially</li> <li>◦ socially</li> <li>◦ culturally</li> </ul> </li> <li>• The phone manufacturers</li> <li>• The phone shops/networks</li> </ul> <p>Technology</p> <ul style="list-style-type: none"> <li>• The type of devices that are disposed of</li> <li>• Modern phones poorly designed for durability</li> <li>• Phones hardware not upgradeable/replaceable</li> <li>• Proprietary technology used by some manufacturers</li> </ul> <p>Environmental</p> <ul style="list-style-type: none"> <li>• Reference to e-waste (people dispose of their devices in landfill even if they are in good working order)</li> <li>• Some equipment is also sent abroad to be</li> </ul>

## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
	<p>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.</p> <p><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.</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>disposed of</p> <ul style="list-style-type: none"> <li>• Leads to excessive landfill (in this country and/or abroad, e.g. Africa and Asia)</li> <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 Precious metals in phones</li> </ul> <p>Ethical Issues</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>
	<b>Total</b>	<b>6</b>	

## Mark Scheme

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6	<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</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><u>Inhabitants</u></p> <ul style="list-style-type: none"> <li>• Connection with the rest of the world</li> <li>• Access to more information</li> <li>• Up-to-date with news</li> <li>• E-commerce</li> <li>• Communication with people</li> <li>• Can be used in schools/for education</li> <li>• Cost (Devices and connection)</li> </ul> <p><u>Businesses</u></p> <ul style="list-style-type: none"> <li>• Sell products to wider audience//more customers</li> <li>• Purchase items from wider range/more places</li> <li>• Competitive prices</li> <li>• Tourism can be advertised</li> <li>• Online bookings for hotels</li> </ul> <p><u>Ethical issues</u></p> <ul style="list-style-type: none"> <li>• Access to inappropriate/illegal content</li> <li>• Lead to social pressure to be online and get</li> </ul>

## Mark Scheme

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	<p>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.</p> <p><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><b>0 marks</b> No attempt to answer the question or response is not worthy of credit</p>		<p>technology</p> <ul style="list-style-type: none"> <li>• Cost</li> <li>• Introduces digital and social divide</li> <li>• Threats</li> </ul> <p><u>Privacy issues</u></p> <ul style="list-style-type: none"> <li>• Tracking of IPs/devices</li> <li>• Social media</li> <li>• Unwanted images and videos of people may be put online</li> <li>• Risk of threats e.g. phishing/pharming/virus</li> </ul> <p><u>Examiner's Comments</u></p> <p>Most candidates tackled this question well, demonstrating a good understanding of the potential issues and structuring an appropriate response. The most common responses were given as essays, with the</p>

### Mark Scheme

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			<p>more able candidates allocating a paragraph to each to areas given in the questions.</p> <p>The question required a discussion of the impact of the Internet on both the inhabitants and businesses. A discussion of the impact requires both positive and negative impacts. The more able candidates tackled each area in turn, giving the positive and negative sides to each area.</p> <p>Less able candidates provided limited depth in their responses, giving an example of a drawback to a business but not then expanding this to explain the potential impact.</p> <p>More able candidates were able to evaluate the impact and gave a reasoned conclusion that summarised their findings.</p> <p>There were some answers where candidates assumed that without the Internet the inhabitants had no means of communication, access to and/or knowledge of the world beyond their island.</p> <p>Exemplar 7</p>

Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
			<p>Discuss the impact on the island's inhabitants and businesses of getting access to the internet.</p> <p>In your answer you might consider the impact on:</p> <ul style="list-style-type: none"> <li>• inhabitants - family</li> <li>• businesses - collection</li> <li>• ethical issues - digital divide</li> <li>• privacy issues</li> </ul> <p>Handwritten notes: <i>inhabitants - family, businesses - collection, ethical issues - digital divide, privacy issues, very behind, technology, impact, impact understand, impact</i></p> <p>..... The island's businesses will be able to offer virtual and online services once they can access the internet. This will increase revenue as there are more opportunities to attract people and provide services. Additionally, they can attract international customers with online marketing.</p> <p>..... The inhabitants of the island will greatly benefit from internet access. They can keep in touch with family and friends who live abroad. To do this, they can use emails and international web services for things like entertainment or shopping.</p> <p>..... However, the island will be extremely saturated with new and new devices like smart phones and computers can be expensive. Also, households and businesses will have to buy new equipment like cables and routers to be able to access the internet, which will be costly.</p> <p>..... Finally, there will likely be no privacy laws or protection acts in place as there has previously been no internet. This means that the security of personal data is at risk as there are no legal protections for it. Using programs such as Skype.</p> <p>This candidate began by describing the advantages to business, and then the benefits to inhabitants in paragraph 2. They have identified a drawback to inhabitants, and a general drawback of security risks – covering privacy/ethical issues. The candidate has covered at least three of the bullet points given in the question and given both positive and negative impacts. It was not credited with full marks because it was felt there could have been further expansion e.g. how the lack of security could impact the businesses, and an overall conclusion as to the impact.</p> <p>Exemplar 8</p>

## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
			<p><i>Small business and large business would have access to the internet, small could be streamlined digitally. However with millions paying taxes the internet could mean little internet.</i></p> <p><i>Next, the inhabitants would be able to learn to be properly educated. This would be better because developing the island would be ideal. Business would grow with the island gradually being more computer oriented, companies distributing the internet would make more money and have to deal with growing issues and this is it's action to use the internet.</i></p> <p>This candidate has given a point of relevance in the first paragraph, but not explained how this is an impact. They have also attempted to give a privacy issue, but this is vague. The second paragraph states that inhabitants can now be educated, but they could be without the Internet – this is not an impact; if they had explained that it gives easier access to a greater range of information then this would have been more relevant. They have identified that businesses can grow through greater distribution, but again this is not expanded suitably into a positive impact. The candidate has given a couple of points of relevance and attempted to explain them, but it is lacking depth and clarity. There are two areas covered. This is a low-medium level response, but the relevant points allowed it to gain access to the medium band.</p>



## Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
			<p><b>Exemplar 9</b></p> <p><small>In your answer you might consider the impact on:</small></p> <ul style="list-style-type: none"> <li>• <small>will mean to what</small> <small>ethically</small></li> <li>• <small>growth</small> <small>businesses</small> <small>will be more popular</small></li> <li>• <small>will be able to</small> <small>ethical issues &amp;</small> <small>as they will be impacted with this</small></li> <li>• <small>transparency</small> <small>will</small></li> </ul> <p>.....</p> <p><small>Ethically this should will now become more</small></p> <p><small>knowledgeable about businesses and become</small></p> <p><small>stronger with their ability to individualise</small></p> <p>.....</p> <p><small>Privacy issues as they will be interrelated</small></p> <p><small>with the internet they may fall for some</small></p> <p><small>which cause personal details</small></p> <p>.....</p> <p><small>Businesses will expand and become more popular</small></p> <p><small>as they are able to advertise more. The number</small></p> <p><small>of businesses will increase over time due to</small></p> <p><small>this to</small></p> <p>.....</p> <p><small>The internet interactions will increase as they will</small></p> <p><small>become known for globally. There will be</small></p> <p><small>an increase in marketing sectors which will</small></p> <p><small>allow the people to live better and</small></p> <p><small>healthier</small></p> <p style="text-align: right;"><small>18</small></p> <p>The candidate has given a number of points which are all relevant. They have covered at least three of the bullet points. The response lacked depth for each point, so despite there being a number of points, these were not explained as to their impact. This is therefore restricted to the middle band.</p>
	<b>Total</b>	<b>8</b>	

## Mark Scheme

Question		Answer/Indicative content	Marks	Part marks and guidance	
7		<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>	<p>2 AO2 1b (2)</p>	<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> <p><b><u>Examiner's Comments</u></b></p> <p>This question required an understanding of environmental impacts of selling software physically.</p> <p>Many candidates were able to give detailed explanations as to the positive impact of not releasing a game physically, such as the reduction of materials for packaging.</p> <p>Some candidates need not read the question fully and gave explanations as to how it would benefit Fiona to release it online and not in shops. This led to answers about the number of people it would reach and the income she would make, as opposed to the environmental impact.</p>	
		<b>Total</b>	<b>2</b>		

**Mark Scheme**

Question	Answer/Indicative content				Marks	Part marks and guidance
8	Action	Data Protection Act 2018	Computer Misuse Act 1990	Copyright Designs and Patents Act 1988	6 (AO1 1b)	<p>1 mark for each tick in the correct box.</p> <p>0 marks for a row with more than one tick.</p>
Using a picture for the law company's new logo without the original creator's permission.			✓			
A secretary accessing a lawyer's personal email account without permission.		✓				
Making a copy of the latest Hollywood blockbuster			✓			

### Mark Scheme

Question			Answer/Indicative content			Marks	Part marks and guidance	
			movie and sharing it with a client.					
			Storing customer data insecurely.	✓				
			A lawyer installing a key logger on the secretary's computer.		✓			
			Selling client's personal legal data to a marketing company without their permission.	✓				
<b>Total</b>						<b>6</b>		



## Mark Scheme

Question			Answer/Indicative content	Marks	Part marks and guidance
					<p><b>Exemplar 4</b></p> <p><i>This means the public will be able to use his work without asking permission. This considers certain conditions from which William can choose. For example Attribution means that he must be credited. He cannot distribute his work after using it or non-commercially it cannot be used for commercial purposes.</i></p> <p>This good response shows a clear understanding of Creative Commons licensing and its different forms. They have identified that the public are able to use William's work and then given the examples of Attribution and the implication that William must be credited if his work is used. This has already gained the 3 marks, but they continue to describe the need for the work to be used non-commercially.</p>
			<b>Total</b>	<b>3</b>	

**Mark Scheme**

Question		Answer/Indicative content				Marks	Part marks and guidance
10		Actio n	Data Prote ction Act 1998	Com puter Misus e Act 1990	Copy right Desig ns and P atent s Act 1988	6	1 mark for each tick in the correct box.  0 marks for a row with more than one tick.
		Using a picture for the law firm's new logo without the original creator's permission			✓		
		A secretary accessing a lawyer's personal email account without permission		✓			
		Making a copy of the latest Hollywood blockbuster			✓		

### Mark Scheme

Question			Answer/Indicative content			Marks	Part marks and guidance	
			movi e and shari ng it with a client					
			Storin g cus tomer data i nsec urely	✓				
			A law yer in stallin g a key logge r on the s ecret ary's comp uter		✓			
			Sellin g clie nt's p erson al data to a mark eting comp any w ithout their permi ssion	✓				
<b>Total</b>						<b>6</b>		



## Mark Scheme

Question		Answer/Indicative content	Marks	Part marks and guidance	
11	i	<ul style="list-style-type: none"> <li>• Source code not made available/ Only compiled code is published</li> <li>• Licence restricts the copying / modifying / distribution of the software</li> </ul>	2	<p>The mention of a licence is not sufficient. Candidate should state that the licence restricts copying / modifying / distributing.</p> <p>“closed source” is not enough because it just gives an alternative term for “proprietary” without a description of what we mean by “closed”</p> <p><b><u>Examiner's reports</u></b></p> <p>This part was intended as a more difficult question to differentiate the top candidates, was generally poorly answered. It had been expected that more candidates would be able to provide a definition of proprietary software for part (i) but many candidates appeared unfamiliar with the term in the context in which it is used in the specification. For those who were aware of the term, several common misconceptions were repeated such as the idea that proprietary software is always sold at a cost.</p>	

## Mark Scheme

Question		Answer/Indicative content	Marks	Part marks and guidance	
	ii	<p>eg</p> <ul style="list-style-type: none"> <li>• Stops competing companies copying their software (or hardware / ebooks)</li> <li>• ... and producing similar / better products.</li> <li>• Ensures compatibility (with the e-book reader)...</li> <li>• ... as they can ensure that no modifications have been made</li> </ul> <p>(mark points in pairs).</p>	2	<p>The first mark is for identifying a relevant advantage <i>to the manufacturer</i>, and the second for details expanding this point.</p> <p>Accept answers about preventing reverse engineering the company's product or piracy of the company's software or e-books (e.g. DRM) as referring to the first set of answers.</p> <p><b><u>Examiner's Comments</u></b></p> <p>This part was intended as a more difficult question to differentiate the top candidates and was generally poorly answered. Because of the general misunderstanding of the concept, and the necessity to apply it in this specific context and give advantages to the manufacture of the e-book reader in (ii), few candidates gained marks here. A common incorrect answer suggested that the manufacturer would benefit from selling the software to e-book users, when it was indicated in the question that the software is provided with the reader. Other incorrect answers appeared to be making points from a previous question about the use of open source software in schools, which did not apply in this context.</p>	

### Mark Scheme

Question			Answer/Indicative content	Marks	Part marks and guidance	
			<b>Total</b>	<b>4</b>		
12			<ul style="list-style-type: none"> <li>• The source code is distributed with the software</li> <li>• The customer can modify the source code</li> <li>• The customer can redistribute the source code (with the same licence / restrictions)</li> </ul>	2	<p><u>Examiner's Comments</u></p> <p>It was pleasing to see a reduction in the common misapprehension that being free of charge is an essential or defining characteristic of open source software. This shows, to some extent, that centres have taken note of the feedback provided from previous sessions.</p>	
			<b>Total</b>	<b>2</b>		
13		i	1 mark per bullet to max 2 <ul style="list-style-type: none"> <li>• Free of charge</li> <li>• They can adapt it / add features</li> </ul>	2		
		ii	1 mark per bullet to max 2 <ul style="list-style-type: none"> <li>• She can charge customers // She can earn a profit</li> <li>• She can restrict what users can do /// users can't edit it</li> </ul>	2		
			<b>Total</b>	<b>4</b>		
14			Copyright designs and patents act	1		
			<b>Total</b>	<b>1</b>		

### Mark Scheme

Question	Answer/Indicative content	Marks	Part marks and guidance
15	<p>Points may include:</p> <ul style="list-style-type: none"> <li>• Must abide by software licence</li> <li>• So for open source, the school will be able to make modifications / customisations to exams system</li> <li>• But will probably have to make these modifications also available to other users</li> <li>• And credit all previous contributors in the code</li> <li>• Will have to purchase off the shelf attendance package legally</li> <li>• Software must be able to ensure all legal data protection requirements are met.</li> </ul>	6	<p>Candidates are most likely to discuss copyright issues to do with software licensing and / or data protection issues to do with pupils' personal data. Consider any relevant legal issues. It is the quality of discussion, not the breadth of issues that determines the level (eg it is possible to score a high level mark with a detailed description of copyright issues only).</p> <p><b>High Level Response (5–6 marks)</b>  A detailed description of legal issues linked to the scenario in the question. There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p><b>Medium Level Response (3–4 marks)</b>  A description of legal issues and an attempt to link this to the scenario. Either the description of the issues or the links to the scenario may be weak. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p><b>Low Level Response (1–2 marks)</b>  Candidate outlines some obvious legal issues vaguely relevant to a school context. Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.</p> <p><b>Response not worthy of credit (0 marks)</b>  ?  <u>Examiner's Comments</u>  ??  was the more difficult of the two quality of written communication questions. It was intended to be open ended allowing candidates</p>

### Mark Scheme

Question			Answer/Indicative content	Marks	Part marks and guidance
					to take different approaches to demonstrate their understanding by applying their knowledge on two separate parts of the specification and demonstrate their understanding by connecting them to each other and to a given context. As expected the most able candidates did this well and were able to score in the high level band. Most other candidates focused either on legal issues or on different ways of acquiring software without making strong links between the two.
			<b>Total</b>	<b>6</b>	