



Mark Scheme (Results)

Summer 2019

Pearson Edexcel International GCSE In  
Information and Communication  
Technology (ICT)

(4IT1) Paper 01R (TimeZone)

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## General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>1a</b>       | A description to include <b>two</b> from:<br><br>It processes/measures (1)<br>data sent from (1)<br>a sensor/accelerometer (1) |               |                     | <b>(2)</b> |

| Question Number | Answer  | Do Not Accept | Additional Guidance | Mark       |
|-----------------|---|---------------|---------------------|------------|
| <b>1bi</b>      | Any <b>two</b> from:<br>1. Cannot move around (while transferring data)<br>2. Have to waste time finding/connecting cables<br>3. Cost of cables / more expensive<br>4. Health and safety issues ( <b>trailing</b> wires). |               |                     | <b>(2)</b> |

| Question Number | Answer  | Do Not Accept | Additional Guidance | Mark       |
|-----------------|---|---------------|---------------------|------------|
| <b>1bii</b>     | Any <b>two</b> from:<br>1. Slower / lower bandwidth / higher latency<br>2. Shorter range<br>3. Less stable connection<br>4. Interference (e.g. dropped packets, loss of data) /<br>Affected by obstructions<br>5. Less secure<br>6. Requires a password<br>7. Increased demand on battery life. |               |                     | <b>(2)</b> |

| Question Number | Answer  | Mark       |
|-----------------|---|------------|
| <b>1c</b>       | <p><b>The only correct answer is C</b></p> <p><b>A</b> is not correct because an SD card does not provide location data</p> <p><b>B</b> is not correct because an SD card does not provide connectivity</p> <p><b>D</b> is not correct because an SD card does not provide security</p> | <b>(1)</b> |

| Question Number | Answer  | Do Not Accept         | Additional Guidance | Mark       |
|-----------------|---|-----------------------|---------------------|------------|
| <b>1d</b>       | The combination into one device of the technology/features/functionality of multiple other devices. | 'design' for features |                     | <b>(1)</b> |

| Question Number | Answer  | Do Not Accept             | Additional Guidance | Mark       |
|-----------------|---|---------------------------|---------------------|------------|
| <b>1e</b>       | Number of (clock) cycles / instructions carried out (1) per second. (1) | 'data' for 'instructions' |                     | <b>(2)</b> |

| Question Number | Answer  | Do Not Accept | Additional Guidance | Mark       |
|-----------------|---|---------------|---------------------|------------|
| <b>1f</b>       | Any <b>two</b> from:<br>1. Repairing files<br>2. Compression<br>3. Defragmentation<br>4. Back up<br>5. Anti-virus / anti-spyware / anti-malware<br>6. Firewall<br>7. Managing application updates<br>8. Format disks/drives<br>9. System analysis tools |               |                     | <b>(2)</b> |

| Question Number | Answer  | Do Not Accept | Additional Guidance                   | Mark       |
|-----------------|---|---------------|---------------------------------------|------------|
| <b>1g</b>       | An explanation such as:<br><ul style="list-style-type: none"> <li>• It is more expensive (1) per unit of storage (1)</li> </ul> OR<br><ul style="list-style-type: none"> <li>• Provides less storage (1) per unit cost (1)</li> </ul> OR<br><ul style="list-style-type: none"> <li>• They have a shorter lifespan (1) because they have a limited write-cycle. (1)</li> </ul> |               | Linked response required for 2 marks. | <b>(2)</b> |

| Question Number | Answer  | Mark       |
|-----------------|---|------------|
| <b>1h</b>       | <b>The only correct answer is C</b><br><br><b>A</b> is not correct because an operating system is not more secure than application software<br><br><b>B</b> is not correct because an operating system is not controlled by software<br><br><b>D</b> is not correct because an operating system does not provide open source code | <b>(1)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>1i</b>       | A drawing that shows <b>four</b> from:<br>1. Transmitter (from broadcaster)<br>2. Analogue/digital/radio signal identified<br>3. Antenna connected to television<br>4. Correct connectivity identified for this. |               |                     | <b>(4)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>1j</b>       | A description to include <b>two</b> from:<br>Electromagnetic signals from other sources (1)<br>can cause the signal quality to be degraded (1)<br>reducing the quality of the image/sound. (1) |               |                     | <b>(2)</b> |

| Question Number | Answer  | Do Not Accept | Additional Guidance | Mark       |
|-----------------|---|---------------|---------------------|------------|
| <b>2a</b>       | A description such as: <ul style="list-style-type: none"> <li>• Connects two networks (1) of a different <b>type</b> (1)</li> <li>• Connects a LAN (1) to a WAN. (1)</li> </ul> |               |                     | <b>(2)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>2b</b>       | Any <b>two</b> from: <ul style="list-style-type: none"> <li>• The content might buffer/lag / Quality can be restricted by bandwidth/latency/interference</li> <li>• Requires an Internet connection</li> <li>• Sensitive content is not as easily regulated/restricted</li> <li>• Data about her may be stored by the provider.</li> </ul> |               |                     | <b>(2)</b> |

| Question Number | Answer   | Do Not Accept  | Additional Guidance                                | Mark       |
|-----------------|--|--|--|------------|
| <b>2c</b>       | A linked description such as:<br><br>This is an example of pharming (1)<br>The domain name is suspicious / Site is made to look genuine (1)<br>to <b>trick</b> Zara into entering data (1)<br>that can be used fraudulently (1)<br><br><b>OR</b><br><br>This <b>browser</b> does not display a padlock / No 's' after 'http' (in the URL) (1)<br>so data will not be encrypted, (1)<br>can be read if intercepted (1)<br>and used fraudulently (1) | 'The site is not secure'<br><br>'Phishing' for 'pharming'<br><br>'site' / 'page' for 'browser'<br><br><br><br><br><br><br><br><br><br>'Stolen' / 'Hacked'<br>for 'read if intercepted' | Linked responses required for more than two marks. | <b>(4)</b> |



| Question Number | Answer  | Do Not Accept | Additional Guidance | Mark       |
|-----------------|---|---------------|---------------------|------------|
| <b>2d</b>       | Any <b>two</b> from: <ul style="list-style-type: none"> <li>• Requires more (of the tablet's) power / battery will drain more quickly</li> <li>• Can lead to buffering/latency/delay/lag</li> <li>• Reduces the bandwidth available to other devices on the local network</li> <li>• Restricts access to other applications on the tablet computer, e.g. back channel on social media.</li> <li>• <b>Notifications</b> can be seen by others</li> <li>• Greater demand on tablet's resources</li> </ul> |               |                     | <b>(2)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance                 | Mark       |
|-----------------|--|---------------|-------------------------------------|------------|
| <b>2e</b>       | A description such as: <ul style="list-style-type: none"> <li>• PIN is stored/set (1)</li> <li>• User input is compared (against the set PIN) (1)</li> <li>• If match, data is accessible / If no match, no data access (1)</li> </ul> |               | Accept 'code' / 'pattern' for 'PIN' | <b>(3)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance                                     | Mark       |
|-----------------|--|---------------|---|------------|
| <b>2f</b>       | <p>A linked explanation such as:</p> <p>You cannot access the application / share data if you lose your Internet connection (1) because it is stored in the cloud / on remote servers.</p> <p><b>OR</b></p> <p>The application could lag (1) because of low bandwidth / high latency (1)</p> <p><b>OR</b></p> <p>They may not offer as many features (1) because of the load on the host's (server) resources. (1)</p> |               | Marks can be awarded across example responses if linked | <b>(2)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance  | Mark       |
|-----------------|--|---------------|--|------------|
| <b>2g</b>       | <p>An explanation such as:</p> <p>It restricts the number of apps that can be installed / files that can be saved (1) because there is limited storage on a local device (1)</p> <p><b>OR</b></p> <p>Apps are not updated regularly/automatically (1) because users have to do it (1)</p> <p><b>OR</b></p> <p>It is harder to collaborate (1) because remote access to the application is not possible / more difficult. (1)</p> |               | Award full marks if response is just a statement of two reasons. | <b>(2)</b> |

| Question Number | Answer  | Mark       |
|-----------------|---|------------|
| <b>3a</b>       | <b>The only correct answer is D</b><br><br><b>A</b> is not correct because Serial is not a type of wireless connectivity<br><br><b>B</b> is not correct because Parallel is not a type of wireless connectivity<br><br><b>C</b> is not correct because Thunderbolt is not a type of wireless connectivity | <b>(1)</b> |

| Question Number | Answer  | Do Not Accept   | Additional Guidance | Mark       |
|-----------------|---|---|---------------------|------------|
| <b>3bi</b>      | An explanation such as:<br>Wi-Fi Direct does not require line of sight / Infrared requires line of sight (1) which is not always possible when moving/exercising. (1)<br><b>OR</b><br>Infrared is / Wi-Fi Direct is not affected by sunlight (1) (which will affect the data transfer because)<br>the health monitor will be used outside (1) | Responses about 'range' for the first mark.<br><br>Responses related to transfer speed / bandwidth. |                     | <b>(2)</b> |

| Question Number | Answer  | Do Not Accept  | Additional Guidance                    | Mark       |
|-----------------|---|--|--|------------|
| <b>3bii</b>     | An explanation to include <b>two</b> from:<br>More packets of data have to be requested again (1)<br>because a signal degrades / gets weaker as it travels (1)<br>due to (more opportunities for) interference / spreading out of the radio waves (1)<br><br><b>Award both marks</b> for 'Inverse square law' | 'It will be slower'<br><br>'Blockages' for 'interference'<br><br>'connection' for 'signal' | Linked response required for two marks | <b>(2)</b> |

| Question Number | Answer   | Do Not Accept        | Additional Guidance | Mark       |
|-----------------|--|----------------------|---------------------|------------|
| <b>3c</b>       | A description such as:<br>To prevent unauthorised access (1) to data (1)<br><b>OR</b><br>A linked description to include <b>two</b> from:<br>To randomise/scramble/encode data (1) using a key/cipher (1)<br>so that it cannot be understood / read (1) by those without the key/cipher. (1) | 'password' for 'key' |                     | <b>(2)</b> |

| Question Number | Answer   | Do Not Accept  | Additional Guidance | Mark       |
|-----------------|--|--|---------------------|------------|
| <b>3d</b>       | A description such as:<br>Signals from multiple satellites are broadcast to / received by the device (1) so the device can calculate its location. (1) | Satellites bouncing a signal back from the smartwatch for mp1. |                     | <b>(2)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>3e</b>       | Any <b>two</b> from: <ul style="list-style-type: none"> <li>• Allow users to locate friends</li> <li>• Suggest friends near you</li> <li>• Suggest local advertisements/businesses/entertainment / targeted marketing</li> <li>• Geo-tag photos/posts to make them searchable by location</li> <li>• Locate people who are in need of assistance</li> <li>• To locate users who act inappropriately</li> </ul> |               |                     | <b>(2)</b> |

| Question Number | Answer   | Additional Guidance  | Mark       |
|-----------------|--|--|------------|
| <b>3f</b>       | 1 mark for sight of 8<br>1 mark for sight of 1024<br>• 1 mark for complete expression<br>(3 x 1024 x 8)<br>that includes each component multiplied.<br><br>Accept 1000 for 1024<br><br>Award all <b>three</b> marks for the result of the calculation:<br><b>24,576</b> Accept <b>24,000</b> | Award 1 mark for sight of:<br>3072 <b>OR</b> 3000<br>as implies sight of 1024 <b>OR</b> 1000<br><br>Award 2 marks for sight of:<br>8,192 <b>OR</b> 8,000<br>as implies sight of 8 <b>AND</b> (1024 <b>OR</b> 1000)<br><br>1000 will be accepted in place of 1024 for this series only. | <b>(3)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>3g</b>       | <b>Two</b> descriptions such as:<br>Products selected / purchase history / sites visited (1)<br>could be used to suggest related products/services. (1)<br>OR<br>Location data (1) could be used to set costs. (1)<br>OR<br>Previous preferences / payment details (1) speeds up checkout. (1) |               |                     | <b>(4)</b> |

| Question Number | Answer  | Do Not Accept | Mark |
|-----------------|---|---------------|------|
| 4ai             | <b>Relevance:</b> Information may correspond/connect/relate to the intended use/topic<br><b>Age:</b> Information is up to date / related to recent thinking<br><b>Reliability:</b> Information is repeatable/representative/matches other sources | 'relevant'    | (3)  |

| Question Number | Answer   | Mark |
|-----------------|--|------|
| 4aii            | <b>The only correct answer is A</b><br><br>B is not correct because plagiarism is not a property of information that affects fitness for purpose<br><br>C is not correct because cost is not a property of information that affects fitness for purpose<br><br>D is not correct because location is not a property of information that affects fitness for purpose | (1)  |

| Question Number | Answer   | Mark |
|-----------------|--|------|
| 4aiii           | <b>The only correct answer is A</b><br><br><i>B is not correct because copyright does not affect the ranking of search results</i><br><br><i>C is not correct because accessibility does not affect the ranking of search results</i><br><br><i>D is not correct because bookmarks do not affect the ranking of search results</i> | (1)  |

| Question Number | Answer   | Do Not Accept | Additional Guidance  | Mark       |
|-----------------|--|---------------|--|------------|
| <b>4b</b>       | A linked description to include <b>four</b> from:<br>The search engine contains a database of URLs (1)<br>and their content (1)<br>that it compares (1)<br>to keywords entered by the user (1)<br>returning matching URLs. (1) |               | Responses may refer to indexing / web crawling in relation to how a search engine builds its database<br><br>Accept 'most relevant' for 'matching' | <b>(4)</b> |

| Question Number | Answer  | Mark       |
|-----------------|---|------------|
| <b>4c</b>       | <b>The only correct answer is C</b><br><br><b>A</b> is not correct because FTP is not used as a payment method<br><br><b>B</b> is not correct because HTTP is not used as a payment method<br><br><b>D</b> is not correct because VPN is not used as a payment method | <b>(1)</b> |

| Question Number | Answer  | Do Not Accept  | Additional Guidance | Mark       |
|-----------------|---|--|---------------------|------------|
| <b>4d</b>       | A description to include:<br><br>IP/MAC addresses / ports (1)<br>are checked/compared/matched/filtered (1)<br>against a database containing whitelist/blacklisted addresses/ports (1) | Responses that refer to web (content) filters for 'filtered' (mp2) |                     | <b>(3)</b> |



| Question Number | Indicative content  |
|-----------------|---|
| <b>4e</b>       | <p>Candidates should compare different points of view, giving evidence for each one. The response does not require a conclusion.</p> <p>The indicative content is not exhaustive/prescriptive and responses should be credited for other relevant content.</p> <p>The scenario is about the impact on <b>society</b> rather than individuals</p> <ul style="list-style-type: none"><li>+ More channels for communication (gaming, social networks etc.)</li><li>+ Knowledge can be shared more easily.</li><li>+ Communication skills are improved through more social interaction online.</li><li>+ Wider exposure to other cultures to create a wider world view.</li></ul><br><ul style="list-style-type: none"><li>- Some people still have restricted access, causing a 'digital divide'.</li><li>- Opportunities for cyber-bullying (with anonymity and the ability to spread a message very quickly making it worse for victims).</li><li>- Concern that virtual communities are replacing real-world ones.</li><li>- Concern that face-to-face communication skills are not being developed in children.</li><li>- Reduced physical activity, as do not have to leave home to access goods and services can lead to increased obesity and burden on health services</li></ul> |

| Level    | Mark       | Descriptor (AO3 - Discuss)  |
|----------|------------|---|
|          | <b>0</b>   | <b>No rewardable material.</b>  |
| <b>1</b> | <b>1-3</b> | A limited number of points will be identified, which may only consider one point of view.<br>At least one point will have evidence to support it.<br>The discussion will have few (if any) links to the scenario.<br>The response will lack clarity and organisation.                       |
| <b>2</b> | <b>4-5</b> | A number of points will be identified, which may consider both points of view.<br>Some points will be supported by evidence.<br>The comparisons will include links to the scenario but may include some generic points.<br>The response will show some focus but may not be well organised. |
| <b>3</b> | <b>6-8</b> | A range of different points that consider both points of view.<br>Most points will be supported by evidence.<br>The majority of the discussion will link to the scenario.<br>The response will show good focus and organisation.  |

| Question Number | Answer  | Do Not Accept                                    | Additional Guidance | Mark       |
|-----------------|---|--|---------------------|------------|
| <b>5a</b>       | Any <b>one</b> from <ul style="list-style-type: none"> <li>• A network that uses third-party infrastructure</li> <li>• A network containing multiple networks / uses a gateway</li> </ul> <b>Accept:</b> A network that is used across multiple sites/buildings | Responses that refer to size of area / distance. |                     | <b>(1)</b> |

| Question Number | Answer  | Do Not Accept | Additional Guidance  | Mark       |
|-----------------|---|---------------|--|------------|
| <b>5b</b>       | A description such as:<br>Accessibility settings such as contrast (1) can be set/altered to ensure different colours are recognisable/identifiable (1) so that people with visual needs (1) are able to view the text/images (1)<br>OR<br>Screen readers (1) can be used to output an audio version of text on screen (1) so that those with visual impairments (1) are able to experience the output content (1)<br>OR<br>Subtitles (1) can be used to describe audio/sound on web pages (1) so that those with auditory impairments (1) can understand the content. (1) |               | Expected answer structure: <ol style="list-style-type: none"> <li>1. Specific configuration (1)</li> <li>2. How it is configured (1)</li> <li>3. Specific need (1)</li> <li>4. How the configuration meets need (1)</li> </ol> | <b>(4)</b> |

| Question Number | Answer  | Do Not Accept                               | Additional Guidance | Mark       |
|-----------------|---|---|---------------------|------------|
| <b>5c</b>       | An explanation such as:<br>Teachers sometimes work in different sites/rooms (1)<br>so, because roaming profiles allow teachers to log in to a server from any computer on the same network (1)<br>teachers can access their data/documents/desktop setup (1)<br>meaning they can carry out their work from any connected room/have a familiar experience each time / not have to use portable storage media (1) | Responses related to working from home etc. |                     | <b>(4)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>5d</b>       | <b>The only correct answer is D</b><br><br><b>A</b> is not correct because reduced network traffic is not a benefit of using a client-server network<br><br><b>B</b> is not correct because faster data transfer is not a benefit of using a client-server network<br><br><b>C</b> is not correct because higher bandwidth is not a benefit of using a client-server network |               |                     | <b>(1)</b> |

| Question Number | Answer   | Do Not Accept | Additional Guidance | Mark       |
|-----------------|--|---------------|---------------------|------------|
| <b>5e</b>       | A description such as:<br>Victims are not as easily able to process/ understand why this has happened to them (1)<br>as they have nobody/nothing to relate the messages to (1)<br>therefore amplifying the psychological impact (1)<br>OR<br>Makes it worse (1)<br>because you do not know who the bully is (1)<br>so you cannot find a way to stop it / discuss it. (1) |               |                     | <b>(3)</b> |

| Question Number | Answer  | Do Not Accept | Additional Guidance   | Mark       |
|-----------------|---|---------------|---|------------|
| <b>5f</b>       | Any <b>two</b> from:<br>1. Document creation<br>2. Database management / storing/querying data<br>3. Spreadsheet <b>modelling</b><br>4. Web authoring<br>5. Presenting information<br>6. Image editing<br>7. Bookmarking / note taking<br>8. Scheduling/organising appointments<br>9. Project management. |               | Response must be a task rather than an application name / brand.<br><br>Accept:<br><ul style="list-style-type: none"> <li>• Presentation</li> <li>• Word Processing.</li> </ul> | <b>(2)</b> |

| Question Number | Answer  |
|-----------------|---|
| <b>5g</b>       | <p>Candidates should compare different points of view, giving evidence for each one. The response does not require a conclusion.</p> <p>The indicative content is not exhaustive/prescriptive and responses should be credited for other relevant content.</p> <p>The scenario is about learning</p> <p>Changes our perception of what an 'expert' is.</p> <ul style="list-style-type: none"><li>+ Information is fact checked by editors and contributors, improving accuracy/trustworthiness</li><li>+ Information can be shared more widely, sharing knowledge</li><li>+ Multimedia can enhance understanding through demonstration and reinforcement</li><li>+ Organised and searchable so information is easier to find more quickly</li><li>+ Facilitates collaboration</li><li>+ Encourages students to add sources/references for their content</li><li>+ Use of (and density of) links between topics can promote the learning of related topics</li><li>+ Creation of links supports the development of knowledge by allowing learners to build relationships between topics.</li></ul> <ul style="list-style-type: none"><li>- Anyone can change information, so it is not always written by experts, reducing accuracy/trustworthiness</li><li>- Information is not as heavily curated by publishers so is less reliable.</li></ul> |

| Level    | Mark       | Descriptor (AO3 - Discuss)  |
|----------|------------|---|
|          | <b>0</b>   | <b>No rewardable material.</b>  |
| <b>1</b> | <b>1-3</b> | A limited number of points will be identified, which may only consider one point of view.<br>At least one point will have evidence to support it.<br>The discussion will have few (if any) links to the scenario.<br>The response will lack clarity and organisation.                       |
| <b>2</b> | <b>4-5</b> | A number of points will be identified, which may consider both points of view.<br>Some points will be supported by evidence.<br>The comparisons will include links to the scenario but may include some generic points.<br>The response will show some focus but may not be well organised. |
| <b>3</b> | <b>6-8</b> | A range of different points that consider both points of view.<br>Most points will be supported by evidence.<br>The majority of the discussion will link to the scenario.<br>The response will show good focus and organisation.  |

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