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Mark Scheme (Results)

November 2021

Pearson Edexcel International GCSE
In Information and Communication Technology (4IT1)

Paper 01: Written Paper

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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.

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Question Number	Answer	Mark
1a	**The only correct answer is D - Performance** ***A*** *is not correct because the user interface will not be improved* ***B*** *is not correct because energy consumption would increase* ***C*** *is not correct because a desktop replacement is less portable*	**(1)**

Question Number	Answer	Mark
1b	**The only correct answer is B – Backup** ***A*** *is not correct because deletion by malware is not accidental* ***C*** *is not correct because encryption does not prevent deletion* ***D*** *is not correct because phishing does not prevent deletion*	**(1)**

Question Number	Answer	Mark
1c	An explanation such as: It can be re-written (1) so it can be reused (1) It is removeable/portable (1) meaning it can be stored off site/secure location (1) It can be protected from hazards/theft (1) because it can be removed (1) Award one mark for Cheaper	**(2)**

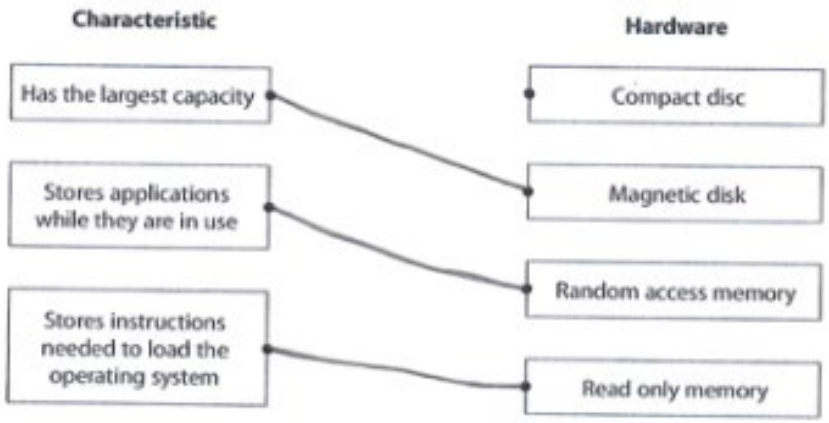
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Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1di	A description to include **two** from: A motor moves a print head across the page (1) and a sheet of paper through the spray area (1) as the print head nozzle sprays ink droplets on to the paper (1)			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1dii	• 1 mark for sight of 8 • 1 mark for sight of 1024 • 1 mark for complete expression: $32 \times 1024^2 \times 8$ ...including all parts multiplied Accept for 1024^2 • 1024 x 1024 • 2^{20} Accept for 8 • 2^3 Accept for 32 • 2^5 Award all three marks for the result of the calculation: 268,435,456	1000 for 1024	Award 1 mark for sight of: 33,554,432 **OR** 32,768 as implies sight of 1024 Award 2 marks for sight of: 262,144 **OR** 8,192 as implies sight of 8 **AND** 1024	**(3)**

Question Number	Answer	Mark
1diii	3D printer	**(1)**

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Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1e			Do not award the mark if more than one line drawn (to different boxes on the right) from any box on the left.	**(3)**

Question Number	Answer	Mark
1fi	Disc/platter Accept hard disc but do not accept hard drive Do not award a mark for Optical Disc or Compact Disc/CD/CD disc	**(1)**

Question Number	Answer	Mark
1fii	Spindle	**(1)**

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Question Number	Answer	Mark
1fiii	Read-write head/arm Accept reading head Do not accept reader/head/arm	**(1)**

Question Number	Answer	Mark
1g	An explanation such as: More applications can run at once (1) because more instructions can be stored/memory locations used (1) OR Applications can run at normal speed/don't lag (1) because once RAM is full slower secondary storage/virtual memory has to be used (1) OR It enhances/improves performance/efficiency (1) because you can operate more applications at a time (1) For MP3 do not accept reference to faster without justification.	**(2)**

Question Number	Answer	Mark
1h	An explanation such as: (Large amounts of) image data has to be buffered (1) because printer memory is small (1) Award a mark if they imply avoiding buffering e.g. avoiding delay Award a mark if they imply the small memory e.g. overloading (the printer)	**(2)**

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Question Number	Answer	Mark
2a	Encryption	**(1)**

Question Number	Answer	Mark
2b	It is sent more quickly	**(1)**

Question Number	Answer	Mark
2c	A description to include **two** from: By defragmenting file data (1) that has been allocated randomly to free space (1) by placing file data in adjacent sectors (1) to reduce the need to spin the disc / seek across the platter surface (1)	**(2)**

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Question Number	Answer	Mark
2d	Any **two** from: 1. word processing 2. database management 3. spreadsheet 4. presentation (multimedia) 5. project management 6. web authoring 7. graphics / image editing 8. video editing 9. media player 10. sound editing 11. control 12. communication / social media/networking Accept: office productivity (software) unless a mark has already been awarded for MPs 1 - 5 Accept: any other appropriate type of application. Do not award brand names eg, Microsoft Word/Word on their own	**(2)**

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Question Number	Answer	Mark
2e	**The only correct answer is C – Optical** ***A*** *is not correct because Optical Mark Recognition is not magnetic* ***B*** *is not correct because Optical Mark Recognition is not online* ***D*** *is not correct because Optical Mark Recognition is not random*	**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2f	A description such as: Application software is used to carry out tasks for the user (1) systems software carries out tasks for the machine/computer (1)		Accept example of tasks for the user (e.g. create a digital product) and examples of system software (utilities / operating system) or tasks (maintenance, I/O, managing resources etc)	**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2g	Any **two** from: • single page • timeline of posts • dynamic/interactive • presented in (reverse) chronological order Accept: user-generated content			**(2)**

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Question Number	Answer	Mark
2hi	**The only correct answer is A - Email pretending to be from a bank** ***B*** *is not correct because encrypting data is not an example of phishing* ***C*** *is not correct because it is a description of pharming* ***D*** *is not correct because it is a description of breach of copyright*	**(1)**

Question Number	Answer	Mark
2hii	**The only correct answer is C – Fraudulent activity** ***A*** *is not correct because phishing does not cause connectivity faults* ***B*** *is not correct because phishing does not cause data deletion* ***D*** *is not correct because phishing does not cause power reductuions*	**(1)**

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Question Number	Answer	Mark
3a	**The only correct answer is C – Cookies** ***A*** *is not correct because authentication is not used for transaction tracking* ***B*** *is not correct because backups are not used for transaction tracking* ***D*** *is not correct because debit cards not track transactions*	**(1)**

Question Number	Answer	Mark
3bi	Award **one** mark for any from: • shopping • booking systems (for travel / leisure / entertainment) • banking • gaming • news / information • auction sites • entertainment • government services Accept any other appropriate type of online service Do not accept Social Media	**(1)**

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Question Number	Answer	Mark
3bii	Any **two** from: 1. Assignments 2. Chat/messaging/video messaging 3. Grades/marks 4. Stream/wall/timeline 5. Notifications 6. Forum/Discussion board 7. Collaboration tools 8. Plagiarism checker 9. Meeting rooms 10. Sharing resources/materials (video/images/links/worksheets) 11. Document editors 12. Quizzes/multiple choice questions Accept any other appropriate feature	**(2)**

Question Number	Answer	**Mark**
3c	**The only correct answer is A – Limited access to technology** ***B*** *is not correct because phishing victims are not 'information poor'* ***C*** *is not correct because not all rural users of 4G are 'information poor'* ***D*** *is not correct because users with write access rather than read access are not 'information poor'*	**(1)**

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Question Number	Answer	Mark
3d	Two descriptions such as: • Improved communication/collaboration (1) through the use of email/messaging services / hosted applications/storage (1) • Increased access to international markets/workforce (1) due to the global reach of the web / opportunities for more flexible working (1) • Improvements in access to customer information (1) through analysis of big data (1) • Make use of transactional data (1) to carry out targeted marketing (1) • Maintains workforce productivity (1) if workforce is unable to attend the workplace (1)	**(4)**

Question Number	Answer	Mark
3e	A description to include **two** linked points such as: • Users can choose/not everyone will agree on (1) whether to follow expectations / rights / responsibilities (1) • Requires monitoring / reporting (1) to enforce consequences (1) • Can be subverted (1) by creating temporary/single use/alternative accounts (1) Marks are awarded for describing challenges, not recalling knowledge of what an AUP is.	**(4)**

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Question Number	Answer	Mark
3f	Two explanations such as: • A smartphone's storage may not be enough (1) because editing graphics creates large files (1) as undo steps are saved (1) • A hosted application server's processor is more powerful than a smartphone's (1) because image processing often requires a lot of operations (1) Do not award for general explanations that are not related to editing graphics on a smartphone.	**(4)**

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Question Number	Answer	Mark
4a	A description such as: The Internet is always available (1) so she can work at times suitable to her (1) OR She can collaborate with others (1) to share expertise / reduce the time to complete a task / share workload (1) OR She can access a wider range of sources (1) allowing her to make better decisions (1)	**(2)**

Question Number	Answer	Mark
4b	A description to include two from: Mention of the cloud / online storage (1) Use of the same account / user profile (1) Synchronising/linking data (1)	**(2)**

Question Number	Answer	Mark
4c	**The only correct answer is B – Gives users access to the Internet** ***A*** *is not correct because an ISP does not connect webpages to intermediate servers* ***C*** *is not correct because an ISP does not prevent security leaks of company information* ***D*** *is not correct because an ISP does not set up a portal for immediate access*	**(1)**

Question Number	Answer	Mark
4d	A password should use a minimum of eight **characters** (1) and have a mixture of **letters/case/numbers/symbols** and **letters/case/numbers/symbols** (1) Accept an example	**(2)**

Question Number	Answer	Mark
4e	Two linked descriptions from: 1. Use key words/terms (images/video/websites) (1) to return more relevant results (1) 2. Filter by images/video/websites (1) to return appropriate file type (1) 3. Filter date (1) to return more recent results (1) 4. Use search syntax (+ - “”) (1) to ensure results include/exclude key terms (1) 5. Filter by usage rights (1) to comply with copyright (1) 6. Filter by colour/size (1) to return results that are more fit for purpose (1) 7. Compare results (1) to look for accuracy / reliability / bias of results (1) 8. Use different search engines (1) as they use different processes/algorithms (1) Do not accept filter on its own	**(4)**

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<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>4f</td><td>
<table>
<tr><th>Health and safety risk</th><th>Method of prevention</th></tr>
<tr><td>Eye strain</td><td>Take regular breaks
Set lighting levels
Anti-glare screen
Use blue light filter
Sit at an appropriate distance from the screen
Use larger screen</td></tr>
<tr><td>Trip hazards</td><td>Use wireless technology
Use cable ties
Run cables under carpet
Organise cables</td></tr>
<tr><td>Fire</td><td>Do not overload sockets
Have electric devices checked regularly</td></tr>
<tr><td>RSI
Back/shoulder/wrist pain
Carpel Tunnel syndrome</td><td>Position keyboard appropriately
Use ergonomically designed seating/furniture
Use ergonomically designed devices
Take breaks
Use correct posture</td></tr>
<tr><td></td><td></td></tr>
</table>
</td><td>(4)</td></tr>
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Question Number	Answer	Mark
4g	**The only correct answer is A – Gateway** ***B*** *is not correct because a router forwards packets in a WAN* ***C*** *is not correct because a WAP provides a connection to a LAN for wireless devices* ***D*** *is not correct because a modem converts digital signals to and from analogue signals*	**(1)**

Question Number	Answer	Mark
4h	A description to include **two** from: • Firewall contains a blacklist and whitelist (of IP/MAC addresses) • Which are checked (do not award 'check' comments without reference to blacklist/whitelist) • Data prevented if in blacklist • Data allowed if in whitelist and/or not in blacklist	**(2)**

Question Number	Answer	Mark
4i	Any two from: • Media Access Control (MAC) • IP address • Device name Accept any other appropriate way.	**(2)**

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Question Number	Indicative content
4j	• Data speeds / bandwidth / latency • Ease of installation • Security • Power (can be provided by wired connectivity) • Compatibility of wireless with most modern devices • Walls and blockages • Interference • Portability • Cost of cabling

Level	**Mark**	**Descriptor (AO3 – Discuss)**
	0	**No rewardable material.**
1	**1-3**	A limited number of points will be identified, which may only support one point of view. At least one point will have evidence to support it. The discussion will have few (if any) links to the scenario. There may be a conclusion, but this is likely to be a simple statement. The response will lack clarity and organisation.
2	**4-5**	A range of points will be identified, which compare different points of view, though the discussion may be unbalanced. Some points will be supported by evidence. The comparisons will include links to the scenario but may include some generic points. A conclusion will be included, which will link with the comparison, though the link may be implicit. The response will show some focus but may not be well organised.
3	**6-8**	The discussion compares a range of different points of view. Most points will be supported by evidence. The majority of the discussion will link to the scenario. A conclusion will be given that clearly links to the comparisons made in the discussion. The response will show good focus and organisation.

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Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5ai	An explanation such as: Can improve the sound quality/volume (1) because the phone can connect to the home entertainment system speakers (1) Award one mark for: She can control the system / volume / pause music remotely (1)			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5aii	Any two from: • Tablet • Laptop • Desktop • Speakers • Headphones/Earbuds • TV • Printer • Watch • Games console • Doorbell/security system • Heating controls • Lighting controls • Router Accept any other appropriate device e.g. home network storage			**(2)**

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Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5b	An explanation to include two linked points such as: She can listen to music on the go (1) because streaming does not require bulky storage (1) OR She can listen to audio from any device (1) because it is stored on a server (1) OR Streaming lets Kay get the latest news (1) because a live recording can be broadcast (1) Do not accept saving storage on its own Do not accept listening live on its own			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5c	An explanation to include two linked points such as: They could lose money from sales (1) because music can be copied / shared (1)			**(2)**

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Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5d	An explanation such as: • Uploads will take a long time (1) because bandwidth is limited / file sizes are large (1) • Increased cost (1) as data often charged per Mb used (1)			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5e	An explanation to include **two** from: A lower resolution / smaller file size version is downloaded first (1) because the bandwidth is limited (1) so that the film can play immediately (whilst the buffer is topped up) (1) OR Users want the film to play immediately (1) so a low resolution version (with smaller file size) is downloaded first (1) because bandwidth Is limited (1)			**(2)**

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Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5f	Award a mark for each appropriate example of: Adapted input device • Braille keyboard Adapted output device • Braille printers • Haptic feedback/vibration devices Adapted software / software setting (e.g.) • Modification in screen brightness • Modification in background colours • Text to speech • Speech to text/voice interface/voice recognition • Increase size • Gesture interface • Sound recognition • Blue light filter • High contrast colours Any other acceptable response		Can award for two of any input/output device or software	(2)

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Question Number	Indicative content

5g	• Added needs for ICT
	• Effect of ICT on environment
	  ○ Manufacture and use of materials
	  ○ Disposal:
	  ▪ Landfill
	  ▪ Leaking batteries
	• Ways of making use of ICT more sustainable
	  ○ Power options
	  ○ Recycling of materials in manufacture
	  ○ Reuse of devices (second hand)
	• Ways ICT can be used to mitigate/benefit the environment (these two points are not mutually exclusive)
	  ○ Tracking wildlife to protect endangered species and learn about environmental issues
	  ○ Use of communication technology to promote awareness of issues
	  ○ Monitoring of climate change

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Review information then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information. Come to a supported judgement of a subject's qualities and relation to its context

Level	Mark	Descriptor (AO3 – Evaluate)
	0	**No rewardable material.**
1	**1-3**	An attempt at evaluation will have been made. A range of evidence will be identified, though not all of it will be useful. Some of the evidence will have been discussed. The discussion will have few (if any) links to the subject and/or context. There may a conclusion but this is likely to be a simple statement and not a supported judgement. The response will lack clarity and organisation.
2	**4-5**	The evaluation will have identified evidence that can be used to make a judgement. There will be a range of useful evidence including some of strengths, weaknesses and/or relevant data. The discussion of evidence will have some links to the subject and/or context. There will be a conclusion that makes a judgement on the subject's qualities. The response will show some focus but may not be well organised.
3	**6-8**	The evaluation will have reviewed evidence and provided a conclusion. An appropriate range of evidence will be identified and used. The evidence will be used to come to a judgement that uses most of the evidence. A conclusion will be given that clearly links to the comparisons made in the discussion. The response will show good focus and organisation.

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