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Mark Scheme (Results)

Summer 2022

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

(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 – Creating video files** *A is not correct because a camcorder is used to record video, rather than to back up files.* *B is not correct because a camcorder is not used to connect a camera and tablet* *C is not correct because a camcorder cannot be used to create presentation transitions*	**(1)**

Question Number	Answer	Mark
1b	**The only correct answer is D – USB** *A is not correct because 3G has a lower data transfer speed than USB* *B is not correct because GPS cannot be used to transfer files* *C is not correct because NFC would not be used to transfer files and has a lower data transfer speed than USB*	**(1)**

Question Number	Answer	Mark
1c	Any one from: • They will be sent/arrive more quickly • Higher bandwidth Accept: More secure	**(1)**

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Question Number	Answer	Mark
1d(i)	An explanation such as: • Social networks allow her to reach a wider audience (1) because people can share them (1) • Only one upload is required to a social network (1) because your followers can see your post (1) • Social media is faster / Email will take longer / It takes more data to send emails (1) because each email needs to be sent separately (1) • Some photos may be too big to send using email (1) because some mail servers place limits on file sizes (1) • Letta can correct errors when posting (1) because she can delete/edit the post (1) • Emails do not allow errors to be corrected (1) because emails cannot always be retrieved/deleted after sent (1) • Social networking allows interactivity (1) because others can comment/reply etc (1) Responses may use points across mark points	**(2)**

Question Number	Answer	Mark
1d(ii)	Any one from: • She owns the copyright / rights to the image • The image is her property	**(1)**

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Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1e(i)	• Award 1 mark for: 128/3 or 1024/3 or 128*1024 • Award 2 marks for complete expression: 128/3*1024 Award for 1024: • 2^{10} Award **both** marks for the correct number of photographs: **43,690**	1000 for 1024		**(2)**

Question Number	Answer	Mark
1e(ii)	**The only correct answer is B - Flash** *A is not correct because memory cards do not use cloud storage* *C is not correct because memory cards do not use magnetic storage* *D is not correct because memory cards do not use optical storage*	**(1)**

Question Number	Answer	Mark
1e(iii)	To store startup instructions	**(1)**

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Question Number	Answer	Mark
1e(iv)	She can store/take more photos	**(1)**

Question Number	Answer	Mark
1f	An explanation such as: It can take more photos per second (1) because it can digitise/process each image more quickly / reduce motion blur (1)	**(2)**

Question Number	Answer	Mark
1g(i)	One mark for each correct label: • Spindle • Laser	**(2)**

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Question Number	Answer	Mark

1g(ii)	A description to include **four** linked points from:
	
	• A laser light shines (onto the surface) (1 mark)
	
	• A (read) head moves across the surface (1 mark)
	  ○ …of a rotating disk (1 mark)
	
	• Light is reflected (to the photocell) (1 mark)
	  ○ …if a land/flat area exists (and detected by a photocell) (1 mark)
	  ○ …representing a 1 (1 mark)
	
	• Light is scattered (1 mark)
	  ○ …if a pit exists (and not detected by the photocell) (1 mark)
	  ○ …representing a 0 (1 mark)
		(4)

Question Number	Answer	**Mark**
1g(iii)	Any **one** from: • CD • DVD • Blu-ray	**(1)**

Question Number	Answer	**Mark**
1h	Award **one** mark for any example of an embedded system. e.g. Washing machine, microwave, coffee machine Do not accept 'smartphone' / 'phone'.	**(1)**

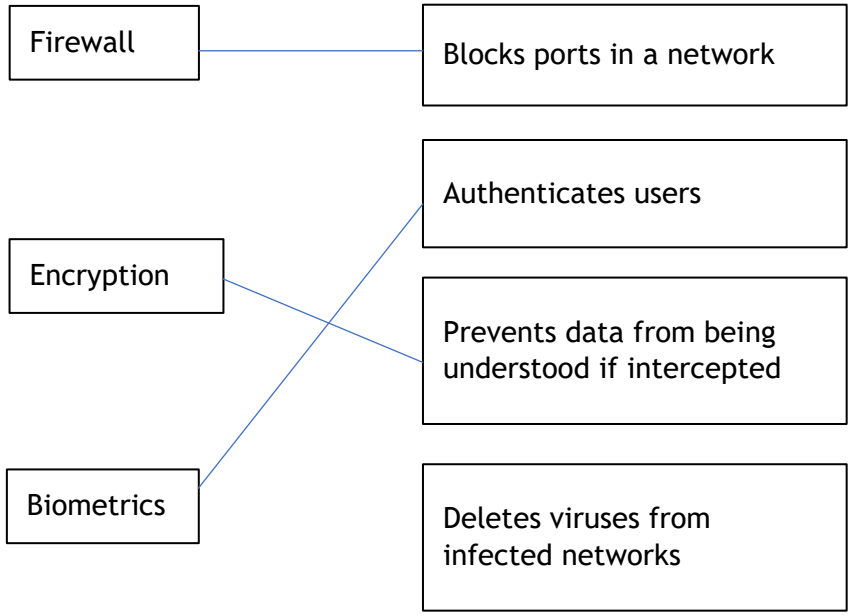
Question Number	Answer	Mark
2a	**The only correct answer is D – Scanning text** *A is not correct because OCR is not used to search* *B is not correct because OCR does not open e-books* *C is not correct because OCR does not recognise barcodes*	**(1)**

Question Number	Answer	Mark
2b(i)	• IP address • MAC	**(2)**

Question Number	Answer	Mark
2b(ii)	Any **two** from: • Security • Communication / Transmitting data to the correct device • Logging	**(2)**

Question Number	Answer	Mark
2b(iii)	Any **two** from: • A LAN covers a small (geographic) area/a WAN covers a large (geographic) area • A LAN uses infrastructure owned by one company/a WAN uses third-party infrastructure • A LAN connects individual devices/a WAN connects LANs • A LAN uses switches (to connect devices)/a WAN uses gateways (to connect LANs)	**(2)**

Question Number	Answer	Mark
2b(iv)	An explanation such as: • It saves money (1) because each computer does not have to have a printer attached (1) • People can print from any computer (1) because print data can be sent using the network connections (1) • The printer's memory will not be overloaded (1) because a print server can be used to store the jobs (1)	**(2)**

Question Number	Answer	Mark
2b(v)	**Method** **Use**  Do not award the mark if more than one line drawn (to different boxes on the right) from any box on the left.	**(3)**

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Question Number	Answer	Mark
2b(vi)	**The only correct answer is D – Wide area network** *A is not correct because a PAN does not require a gateway to connect to a LAN* *B is not correct because a server does not require a gateway to connect to a LAN* *C is not correct because smartphone does not require a gateway to connect to a LAN*	**(1)**

Question Number	Answer	Mark
2c	A description to include **one** from: • Reduce the resolution / quality / bit rate (of the video) • Increase the bandwidth of the connection / stop using other applications/devices (using bandwidth) And **one** mark for • Appropriate reference to buffering / the buffer	**(2)**

Question Number	Answer	Mark
2d	A description to include: • The time it takes for data to travel (between devices) (1) • Reference to **increased** time/delay (1)	**(2)**

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Question Number	Answer	Mark
2e(i)	A linked explanation such as: • Multiple people can use the same computer (1) because users can be added/deleted (1) • Only specific users can securely access their storage space (1) because user permissions can be edited (1) • Only certain users can install programs / access certain files (1) because user permissions can be enforced (1) • The limited storage on the machine can be shared (1) because the amount of resources/storage each user can access can be controlled (1) Marks can be awarded across mark points	**(2)**

Question Number	Answer	Mark
2e(ii)	A linked explanation such as: • It helps prevent loss of data (1) because malware could deliberately delete data / because data can be corrupted / because data can be deleted accidentally (1) • It helps minimise disruption following a system/power failure (1) because a copy is created that can be restored (1) • Data can be restored from the backup (1) because physical hazards (fire/flood) can damage storage devices (1) Marks can be awarded across mark points	**(2)**

Question Number	Answer	Mark
2f	The timeline of all **dependent** tasks.	**(1)**

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Question Number	Answer	Mark
3a(i)	Any **two** from: • shopping sites • booking systems (for leisure/sports/entertainment) • banks • education and training • gaming sites • news and other information providers • auction sites • entertainment / streaming / on demand / downloads Accept any other appropriate type of online service	**(2)**

Question Number	Answer	Mark
3a(ii)	Any **two** from: 1. basket 2. checkout 3. payment 4. catalogue / image gallery / descriptions of holidays etc. 5. reviews 6. e-tickets / email/SMS confirmation 7. date/time **picker** / calendar 8. availability checker Accept any other appropriate feature	**(2)**

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Question Number	Answer	Mark
3b	**The only correct answer is D – Transaction tracking** *A is not correct because the role of a cookie is not to authenticate users* *B is not correct because the role of a cookie is not to be used during backup* *C is not correct because the role of a cookie is not to track transactions*	**(1)**

Question Number	Answer	Mark
3c	**The only correct answer is B – Anonymising posts** *A is not correct because acknowledging sources does not improve safety* *C is not correct because avoiding copyright does not improve safety* *D is not correct because paraphrasing does not improve safety*	**(1)**

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Question Number	Answer	Mark
3d	Two descriptions such as: • Increases free speech (1) through the ability to comment without censorship (1) • Enables (wider) debate (1) through interactive technologies / wider reach (1) • Promotes a more inclusive society (1) by enabling access from/to different cultures/societies (1) • Gives power to individuals (1) by allowing people to express their opinions (1) • Improves education (1) by giving people more access to material / allowing them to interact/collaborate (1) • Enables a healthier society/environment (1) as tech can help people monitor/track/improve developments in medicines/treatments / environmental factors e.g. carbon levels (1) • Wealthier society (1) by increasing access to global marketplace (1) Marks can be awarded across mark points	**(4)**

Question Number	Answer	Mark
3e(i)	A description such as: • Users have edit rights (1) to all wiki content / content added by others (1) • Content is linked together (1) by inserting hyperlinks (1) Accept comparisons such as: A wiki is structured in pages (1) rather than as a timeline of posts (1)	**(2)**

Question Number	Answer	Mark
3e(ii)	A description to include two from: • Sets expectations/rights/responsibilities/rules • To act as a deterrent / reduces inappropriate activity/behaviour / encourages rules to be followed • With associated consequences • Helps users feel protected	**(2)**

Question Number	Answer	Mark
3e(iii)	A description to include two from: • Posts can be flagged/reported (1) checked by moderators (1) who can then delete/flag the post / block/ban users (1) OR • Posts can be checked by a filter (1) that determines if the content is appropriate (1) and the user/post can be flagged/blocked/banned/deleted (1)	**(2)**

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Question Number	Answer	Mark

4a	An explanation to include two from:
	• Impact:
	  ○ more productive / doesn't waste time
	  ○ better motivated
	  ○ more flexibility
	  ○ better work life balance
	• Reason:
	  ○ work at home / on the move
	  ○ access online files/information/resources/software
		(2)

Question Number	Answer	Mark
4b(i)	An explanation to include: • Employers do not need to buy hardware (1) because processing and storage is done server-side (1) • Increases data security / Employer can control versions of software/data/documents/files / Employer does not have to install software on individual devices (1) because data/software is stored centrally (1) • Employer can ensure employees are working efficiently/safely (1) because the employer can monitor work / through the use of monitoring software (1) Award responses that are a benefit to employee/Letta if they are, therefore, a benefit to the employer.	**(2)**

Question Number	Answer	Mark
4b(ii)	Any **one** from: • Server • Mainframe	**(1)**

Question Number	Answer	Mark
4c	A description such as: (Filter software) checks words (1) against a list of (blocked) keywords (1)	**(2)**

Question Number	Answer	Mark
4d	Any **two** from: • Minimum eight characters • Mixture of letters and numbers • Use of punctuation/symbols/special characters • Not a recognisable word/name • No repeating characters • **Mixture** of (upper/lower) case • Combining (unrelated) words Do not accept – 'memorable' (this is not related to a password's strength)	**(2)**

Question Number	Answer	Mark
4e	A description to include two linked points from: • A website poses as an authentic website • Which misleads users to enter (personal) data/information • Data/information can then be used inappropriately	**(2)**

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Question Number	Answer	Mark
4f	**The only correct answer is D - Using magnetic storage rather than solid state storage** *A is not correct because sending fewer emails increases sustainability (as it uses less power)* *B is not correct because switching off computers increases sustainability (as it uses less power)* *C is not correct because turning down screen brightness increases sustainability (as it uses less power)*	**(1)**

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Question Number	Indicative content
4g	• Cost of infrastructure • Limitations of mobile broadband for data speeds / bandwidth (or reverse for broadband) • Latency of mobile broadband • Cost for downloads / availability of 'unlimited' data contracts • Improvements brought by 3/4/5G • Decision based on usage • Flexibility of contracts (can be shorter with mobile)

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	Mark
5a	Two explanations, each to include **two** linked points such as: • Faster access is required to the processor (1) because video editing is processor intensive (1) • Transferring large files would take a long time over networks / Application/file data loads more quickly (1) because of insufficient bandwidth / because there is no network delay (1) • Edits/rendering could not be done/seen in real time (1) because of latency (1) Marks can be awarded across mark points	**(4)**

Question Number	Answer	Mark
5b	Any **two** from: • providing remote access to systems • exchanging data/files • sending messages/emails Do not accept 'communicate' (as it is too close to the content of the question)	**(2)**

Question Number	Answer	Mark
5c	A linked explanation such as: • To improve security / to protect/patch/debug the system (1) because new threats/issues could be released/reported (1) • To add new features (1) because the user may want to carry out new tasks (1) • To ensure compatibility (1) because new software/hardware is released (1) • To improve efficiency (1) because it will enhance the user experience (1) Marks can be awarded across **linked** mark points	**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5d	Any **two** from: • Microphone • Touchscreen • Trackpad • (Graphics) tablet • Camera / Eye tracker / Gesture sensor/reader	Adapted keyboard Adapted mouse		**(2)**

Question Number	Answer	Mark
5e	An explanation such as: • It speeds up access to data / reduces the need to spin the disc / seek across the platter surface (1) because it organises data into adjacent sectors (1) • The installed software might not have been stored in sequential space (1) because there might not have been a free block available that is large enough (1) • It puts the file fragments back in order (1) because they have been stored non-sequentially (1)	**(2)**

Question Number	Answer	Mark
5f	Compression	**(1)**

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Question Number	Indicative content
5g	• Privacy / Freedom • Control • Protection from harm • Surveillance • Feeling of mistrust • Justification for intrusion on privacy • 'Nothing to hide' argument • Methods for monitoring movements and communications • Methods of subverting monitoring methods / effectiveness of protection • Discrimination / disproportionate impact on certain groups of society

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.

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		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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