Mark Scheme (Results)

Summer 2024

Pearson Edexcel International GCSE Information and Communication Technology

(4IT1_01 Paper 01)

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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	Mark
1a	Microphone	**(1)**

Question Number	Answer	Mark
1bi	C	**(1)**

Question Number	Answer	Mark
1bii	A	**(1)**

Question Number	Answer	Mark
1c	A description such as: ● Downloading/uploading only a part of the audio (1) so that it can be played without having to wait for the download/upload to finish (1) ● Video/sound/media that is downloaded/shared/buffered (1) while being played/watched (1) Example of a common response that gains two marks: "The ability to play a file without it being fully downloaded"	**(2)**

Question Number	Answer	Mark
1d	● WAN ● Wide area network Accept: Client–server	**(1)**

Question Number	Answer	Mark
1e	An explanation such as: Restricts the (illegal) recording/duplication/distribution of the media (1) because it is a legal protection (of the intellectual property) / without Joe's permission(1)	**(2)**

Question Number	Answer	Do Not Accept	Mark

1fi	8×1024 or 8192 **in the numerator** (1)
	
	300 **in the denominator** (1)
	
	Award both marks for complete expression:
	
	    e.g. 8×1024÷300
	         8÷300×1024
	         1024÷300×8
	
	Award one mark for the correct number of shows: 27
	
	Accept for one mark: 27.3
	
	Accept / for ÷
	Accept * for ×
	
	Accept for 1024
	
	     • 2^{10}
		1000 for 1024
		
		300÷8×1024
			(2)

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

Question Number	Answer	Mark
1fiii	Any **two** from: ● More storage available / more shows can be stored ● Storage is non-volatile ● Decreases space left for running applications / Affects processing speed	**(2)**

Question Number	Answer	Mark
1fiv	A	**(1)**

Question Number	Answer	Mark
1fv	Data does not have to be stored sequentially	**(1)**

Question Number	Answer	Mark

1gi	Any one from: - Instructions per second - Clock cycles/speed - Cycles per second - GHz - MHz - KHz - Hz	**(1)**

Question Number	Answer	Mark
1gii	Any one from: - USB (connectivity) - Firewire (connectivity)	**(1)**

Question Number	Answer	Mark
1hi	Any one from: - Unauthorised access (Personal data) leaks/leaking - Theft - Damage - Deletion Do not accept hacked/hackers without expansion. Do not accept phishing.	**(1)**

Question Number	Answer	Mark

1hii	A description such as:	
	1. Use a firewall (1) to block access to network ports (1) 2. Use encryption (1) to prevent data from being read/understood if intercepted (1) 3. Use a VPN (1) to hide/change their IP address (1) 4. Use a password/PIN biometric/CAPTCHA (1) as authentication (1) 5. Use multi-factor authentication (1) to confirm identity (1) 6. Use anti-malware (1) to check for / quarantine viruses (etc) (1) 7. Check websites use https (1) by looking for a padlock / https in url (etc) (1) 8. Back up data (1) to ensure a second copy is available (1)	
		(2)

Question Number	Answer	Mark
1hiii	Any two linked explanations from: ● Joe must only use data for limited/agreed purposes only (1) because people will only have to provide adequate/relevant data (1) ● Joe must only process minimised data (1) so people only have to provide data limited to what is necessary (1) ● Joe must only process data that is accurate (1) so people are not negatively affected by irrelevant outcomes (1) ● Joe must keep data up to date (1) so people are not negatively affected by irrelevant outcomes (1) ● Joe must not store/process data for longer than necessary (1) so people don't receive outdated outcomes (1) ● Joe must process data / keep securely (1) so prevent unauthorised access / misuse (1) ● Joe must gain consent (1) so people have ownership over how their data is used / so that data is not transferred to/shared with other entities (1) Do not accept: 'cannot share information/data' on its own for 1 mark.	**(4)**

Question Number	Answer	Mark
1hiv	A linked description to include two from: • Use cookies (1) that track/record user activity (1) that can be matched against similar content. (1)	**(2)**

Question Number	Answer	Mark
2a	An explanation such as: ● It could negatively affect the audience experience / reduce stream quality (1) because (upstream) bandwidth is limited (1) ● Data/bandwidth consumption is high when uploading (1) / because file size will be much greater (1) ● It would take longer to upload videos (1) because bandwidth is being used for uploading stream data (1)	**(1)**

Question Number	Answer	Mark
2b	B	**(1)**

Question Number	Answer	Mark
2ci	Any one from: ● Cyber bullying / trolls / foul language ● Misrepresentation ● Disclosure of personal information / data breach	**(1)**

Question Number	Answer	Mark
2cii	A description such as: ● Monitor posts/users (1) and flag/report/advise/remove/block inappropriate users/posts (1)	**(2)**

Question Number	Answer	Mark
2ciii	Any one from: ● To set the rules/consequences for users when communicating online. ● To improve online safety	**(1)**

Question Number	Answer	Mark
2d	A description to include two from: ● The ability to upload/post information (1) is used to link/match/suggest users (1) with common interests. (1)	**(2)**

Question Number	Answer	Mark
2ei	A	**(1)**

Question Number	Answer	Mark
2eii	Any two from: ● Compare another source to see if the information matches ● Check the age of the information is not out of date ● Check the information relates to the subject	**(2)**

Question Number	Answer	Mark
2eiii	C	**(1)**

Question Number	Answer	Mark
2f	A description such as: ● Users can like/upvote/the post (1) meaning it will appear on more user's feeds (1) ● Users can share (the post) (1) to friends/family/others (outside Joe's community) (1) ● Posts can be (paid) promoted (1) to specific users with matched interests targeted (1)	**(2)**

Question Number	Answer	Mark
2g	C	**(1)**

Question Number	Answer	Mark
3ai	To provide internet access/service	**(1)**

Question Number	Answer	Mark
3aii	Any two from: ● Router ● Gateway ● (Network) cable ● Modem ● Network interface (card) / NIC Do not accept 'wire' for cable. Do not accept types of cable that are not network cables (e.g. 'power cable')	**(2)**

Question Number	Answer	Mark
3aiii	A description to include any two linked points from: To check / interpret a URL (1), send a request for an IP (1) to a domain name server (1) then fetch the resource (from the web server at that IP address) (1) interprets HTML (1) then displays the contents to the user (1)	**(2)**

Question Number	Answer	Mark
3aiv	Any one from: ● Identifying/locating/track a device/person ● Ensuring data can be / is sent (to the correct device)	**(1)**

Question Number	Answer	Mark
3av	An explanation such as: ● More reliable method of identifying a device (1) because MAC addresses are hard coded / uniquely identify a device (1) ● Harder to identify a device to attack (1) because MAC addresses are not contained in data packets (1) ● A MAC address is unique (1) because the last three hex pairs reference the individual device's network interface card (1) ● The manufacturer can be identified (1) because the first three hex pairs reference the manufacturer code (1) Accept: "MAC cannot be changed" for "hard-coded". Do not accept: "more secure" for "harder to identify a device to attack"	**(2)**

Question Number	Answer	Mark
3bi	Any two from: ● Wi-Fi ● Bluetooth ● Infra-red	**(2)**

Question Number	Answer	Mark
3bii	An explanation such as: Joe needs access to the Internet (1) because the broadcast is online (1)	**(2)**

Question Number	Answer	Mark
3ci	D	**(1)**

Question Number	Answer	Mark
3cii	B	**(1)**

Question Number	Answer	Mark
3d	A description such as: ● To provide a (central) store of data/applications (1) and handle requests by clients (1) ● To provide access to (shared) printers (1) and manage/queue client requests (1) ● To manage security (1) by providing user authentication / access controls (1) ● To manage updates/maintenance (1) deployed to all clients (1) ● Provides centralised backup (1) so that each device does not have to be backed up individually (1) Award responses that describe **central**, security, email services etc.	**(2)**

Question Number	Answer	Mark
3e	An explanation such as: ● Better security (1) because of control of user access rights (1) ● Less chance of data loss (1) because backup is centralised (1) ● Reduced admin/maintenance (1) because software/storage can be shared (1) ● Allow flexible use of space / hotdesking (1) because roaming profiles can be set up (1) ● You don't need to back up each computer individually (1) because backups can be centralised (1)	**(2)**

Question Number	Answer	
		Mark

3f	An explanation such as: ● Increased security (1) because traffic/data is encrypted / IP is changed/not visible (1) ● Access to the radio station's network/LAN/resources (1) by providing a (tunnel) connection via the Internet / WAN (1) Do not accept 'changing location' or 'privacy' for first part of MP1	**(2)**

Question Number	Answer	Mark
3g	A description to include two from: Tether/connect a laptop to a smartphone / mobile hotspot (1) using Bluetooth / Wi-Fi / USB (1) and use its 3G/4G/5G connection (1)	**(2)**

Question Number	Answer	Mark
3h	An explanation such as: Audience will experience pauses/delay/buffering/ lower quality audio (1) because the data upload speed / bandwidth is low (1) Do not award: 'latency/lag' for 'buffering' Award: 'Takes longer for users to download data' for MP2 Award: 'The stream will not be smooth' for MP1	**(2)**

Question Number	Answer	Mark
4a	B	**(1)**

Question Number	Answer	Mark
4b	Resource / memory / hardware / i/o management	**(1)**

Question Number	Answer	Mark
4c	An explanation such as: ● The source code is available/accessible (1) and can be modified/customised (1) Accept: 'Free' / 'cheaper' for one mark. (Accept, as it is not always cost-free, and it is not always free from all restrictions.)	
		(2)

Question Number	Answer	Mark
4d	Two explanations such as: ● To improve usability / productivity (1) because new features can be added (1) ● To improve security / make software work as expected (1) because bugs/errors/viruses can be corrected/patched/protected(1) ● Allows adaptations to be made to the environment (1) Because hardware / OS / law can change (1) ● To make it compatible (1) with latest operating system (1)	
		(4)

Question Number	Indicative content
4e	- *Different types of storage device (SSD, Flash, HDD, Optical, Tape, Cloud)* - *Portability (should discuss size and storage mechanism)* - *Capacity (can be related to cost, storage terminology and examples should be accurate here, could discuss compression as a way to deal with low-capacity devices)* - *Compatibility (chance to discuss lack of support for optical in modern devices)* - *Durability (chance to discuss different optical media's durability)*

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.

Question Number	Answer	Mark
5a	Any two from: ● Poverty / cost ● Social restrictions e.g. lack of education ● Political restrictions e.g. government regulation ● Lack of infrastructure e.g. network/power (on a national/regional scale) ● Cultural restrictions e.g. religion	**(2)**

Question Number	Answer	Mark
5b	Two explanations such as: ● Reduced access to services (1) because more entertainment/medical/government/news (etc) services move online and funding for traditional methods withdrawn (1) ● Reduced access to learning opportunities (1) because education resources are moving increasingly online (1) ● Reduced access to employment (1) because some jobs are only available online (1) ● Increased (social) isolation (1) because reduced opportunities to communicate (1) ● Narrower cultural understanding (1) because of the global reach of the internet (1)	**(4)**

Question Number	Answer	Mark

5c	Two explanations such as: ● Increased energy/resource use (1) because devices require electricity/power (1) ● Increased global warming (1) because of use of fossil fuels (1) ● Increased use of mining / limited resources (1) because need for (more) digital devices (1) ● Increased disposal of digital hardware (1) because more updated devices needed to access online services (1) ● Negative effects on natural water environment/temperature (1) because of increased use of water (for cooling) (1) ● Habitats can be destroyed (1) because infrastructure needs to be created (1)	**(4)**

Question Number	Indicative content
5d	● *Government oversight / regulation* ● *Responsibility of users* ● *Methods available to verify information*

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.