Mark Scheme

Summer 2019

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

(4IT1) 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	Do Not Accept	Additional Guidance	Mark
1a	Any **two** from: 1. Rotating the screen / change the view 2. Compass 3. Music player 4. Crash sensors 5. Step counter / Health apps 6. Controlling/playing games 7. Image stabilisation 8. To turn the device on 9. Raise to answer.		Award any two unique app uses.	**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1bi	Any **two** from: 10. Faster / higher bandwidth / lower latency 11. More stable connection 12. Less interference (e.g. dropped packets, loss of data) / Not affected by physical obstructions (e.g. walls) 13. More secure 14. Password not needed.			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1bii	Any **two** from: 1. Can move around (while transferring data) 2. Does not have to waste time finding / connecting cables 3. Cost of cables / cheaper 4. Health and safety / no **trailing** wires.			**(2)**

Question Number	Answer	Mark
c	**The only correct answer is D** A is not correct because WLAN is not a type of connectivity that the SIM card provides B is not correct because Bluetooth is not a type of connectivity that the SIM card provides C is not correct because Infrared is not a type of connectivity that the SIM card provides	**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1di	A drawing that shows: ● A smartphone connected to the Internet / mobile phone mast ● Correct connectivity identified for this (3G, 4G etc.) ● Tablet directly connected to smartphone ● Correct connectivity identified for this (Bluetooth / Wi-Fi / USB etc.)		Award both MP1 and MP2 if mobile internet connection is displayed on the smartphone (e.g. '4G')	**(4)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1dii	An explanation to include **two** from: Kiki will have less bandwidth (1) because it is fixed (1) and it must be divided between each device/person (1).			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1e	Converged / Convergence.			**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1f	To fetch/decode/execute (1) data/instructions (1). Accept for execute: Runs / Carries out Accept for instructions: Commands / Programs	'Processes' for mark point 1 'Files' for data.		**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
1g	A description that includes **two** from: A program designed so that a user (1) can carry out a particular task (1) such as write letters, mainupate images [etc.] (1)	Examples of application software		**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark

1h	An explanation such as:
	• Data (transfer) will not be negatively affected by movement / less risk of damage to the drive (1).
	  because solid state storage does not use moving parts (1)
	OR
	• Smartphones are portable (1) because
	  solid state storage takes up less space / has no moving parts (1)
	OR
	• Longer battery life (1)
	  because solid state storage uses less power (1)
				(2)

Question Number	Answer	Mark
1i	**The only correct answer is B** A is not correct because the source code in an open source operating system is not owned by a company C is not correct because the source code in an open source operating system is not more secure D is not correct because the source code in an open source operating system does not use less processing power	**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2a	A description to include **two** from: ● Stores IP addresses (in a routing table) ● Reads the packet header ● Takes the recipient's address ● Compares the (recipient's) address to the addresses of all devices that are connected to it ● Forwards the packet / network traffic to its destination ● Using the quickest/most efficient route.			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2b	Any **two** from: 1. Wider variety of content 2. Always available / catch up 3. Access from anywhere (with a connection) 4. Access from any (connected) device 5. Open access (not as restricted by political factors etc.) 6. Can pause / fast forward / rewind 7. Suggestions for shows can be made 8. Can be interactive 9. Can save money **by not buying a TV licence.**			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2c	A description to include four **from**: Zara is a victim of ransomware (1) which is malicious software/malware (1) that has been downloaded/installed (1) encrypting her files (1) using a key/cipher (1). OR Zara is a victim of scareware (1) which is malicious software (1) that appears to have been downloaded/installed (1) and encrypted her files (1).	'virus' for malware		**(4)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2d	Any **two** from: 1. Can take advantage of higher resolution 2. Can take advantage of bigger screen 3. Fewer health and safety risks (e.g. eye strain / RSI) 4. Can take advantage of louder/clearer/better speakers/audio .			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2e	Any **three** from: 1. Facial recognition / face ID 2. Fingerprint recognition / touch ID 3. Voice recognition 4. Iris recognition 5. Password 6. Pattern 7. Encryption 8. Anti-malware. Accept 'biometric' if mark points 1, 2, 3 or 4 are not already awarded.			**(3)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2f	An explanation such as: Hosted applications take up less storage/memory/resources (1) because they don't have to be installed onto the tablet (1). OR Apps are updated regularly/automatically (1) by the host / meaning that users don't have to do it (1). OR Hosted applications are stored online (1) so users can collaborate (in real time) (1).			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
2g	An explanation such as: Can use software anywhere (1) without an Internet connection (1). OR Will load/run faster / without lag (1) because the data is immediately accessible / no connectivity is required (1). OR Has more/unique features (1) because resources are/must be available on the local machine (1).		Award full marks if response is just a statement of two reasons.	**(2)**

Question Number	Answer	Mark
3a	**The only correct answer is C** A is not correct because Bluetooth is not a wired connection B is not correct because resolution is not relevant in terms of the question D is not correct because Bluetooth is not an energy saving connection.	**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
3bi	An explanation such as: Infrared requires line of sight / Bluetooth does not require line of sight (1) which is not always possible when exercising (1)	Responses about 'range' for the first mark. Responses related to transfer speed / bandwidth.		**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark

3bii	Any **two** from:
	  1. Range / distance
	  2. Bandwidth
	  3. Interference
	  4. Physical blockages.
			Accept examples of blockages / interference (e.g. 'walls' / 'other signals')	**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
3c	A description such as: Randomises/encodes/scrambles the data (1) So that it cannot be read/understood / needs to be decrypted / requires a key (1).	'password' for 'key'		**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
3d	Any **two** from: 1. Speed 2. Estimated time of arrival (ETA) 3. Time to destination 4. Quickest route 5. Shortest route 6. Distance travelled 7. Distance to destination 8. Direction/heading/bearing 9. Steps taken. Accept: 'Alternative route' if mp4 or mp5 not already awarded. Accept: 'Distance' on its own if mp6 or mp7 not already awarded			**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
3e	User's location is published / accessible (1) and this information might be shared / used inappropriately (1).		Accept examples of inappropriate use for 2nd mark.	**(2)**

Question Number	Answer	Additional Guidance	Mark

3f	● 1 mark for sight of 8
	● 1 mark for sight of 1024
	● 1 mark for complete expression
	      $(4 \times 1024^2 \times 8)$
	    that includes 1024^2 **OR** 1024 x 1024 **OR** 2^{20}
	    and each component multiplied.
	
	Accept 1000 for 1024
	
	Award all **three** marks for the result of the calculation: **33,554,432** Accept **32,000,000**
		Award 1 mark for sight of:
		  4,194,304 **OR** 4,096 **OR** 4,000,000 **OR** 4,000
		as implies sight of 1024 **OR** 1000
		
		Award 2 marks for sight of:
		  8,388,608 **OR** 8,192 **OR** 32,768 **OR** 8,000,000 **OR** 8,000 **OR** 32,000
		as implies sight of 8 **AND** (1024 **OR** 1000)
		
		1000 will be accepted in place of 1024 for this series only.
			(3)

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
3g	**Two** descriptions such as: 1. The Internet has a wider/global/24 hour reach (1) which makes more customers available (1). 2. Use of accessibility features on a company's online store (1) makes it easier for customers with disabilities to purchase its products (1). 3. Saves (company) money (1) as no need for physical shops / rent / **store** employees (1) 4. People's browsing habits can be recorded/analysed to allow (1) targeted marketing / personalised experience (1) 5. Online reviews (1) help market/promote the company (1)	Increase profits / they can make more money (etc.)	Marks can be awarded from across different mark points	**(4)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
4ai	**Bias**: May focus on only one point of view / not contain full information. **Age**: Information may be out date / irrelevant now. **Reliability**: Information may not match other sources / be inconsistent.		Responses do not need to be situated in the context of sporting events to gain marks.	**(3)**

Question Number	Answer	Mark
4aii	**The only correct answer is D** A is not correct because cost is not a property of information that affects fitness for purpose B is not correct because keyword is not a property of information that affects fitness for purpose C is not correct because plagiarism is not a property of information that affects fitness for purpose	**(1)**

Question Number	Answer	Mark
4aiii	**The only correct answer is D** A is not correct because acknowledged sources would not improve the ranking of a search result B is not correct because alphabetical search terms would not improve the ranking of a search result C is not correct because copyrighted material would not improve the ranking of a search result	**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
4b	An explanation such as: If **specific** keywords are entered into the search engine (1), more relevant results will be returned/matched (1). OR If **vague** keywords are entered into the search engine (1) less relevant results will be returned/matched (1). OR Keywords are **compared** (1) with the content of web pages / providing more relevant results (1). 'Keywords are matched with content' gains **both marks**, as 'matching' requires comparison.		Accept responses such as: 'not get the results he wants' / 'get the results he wants' for 'less relevant' / 'more relevant'.	**(2)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
4c	An explanation such as: The results Zara receives are personalised (1) because cookies / transactional data / previous search history is used (1). OR If the search is not done at exactly the same time (1) then the algorithm may have updated (the index) (1) OR A different search engine / browser is used (1) that uses a filter / different algorithm (1)		Linked explanation required for two marks.	**(2)**

Question Number	Answer	Mark
4d	**The only correct answer is B** A is not correct because it is not a protocol C is not correct because it is not a protocol D is not correct because it is not a protocol	**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
4e	A description such as: Every device/NIC has a unique MAC address (1) that can be blacklisted/whitelisted/checked/filtered (1) by a firewall (1).			**(3)**

Question Number	Indicative content
4f	Candidates should identify points/issues/information/outcomes related to how cloud-based services have impacted on the gap between the information rich and the information poor by **widening** and **narrowing** it. The indicative content is not exhaustive/prescriptive and candidates should be credited for other relevant content. + Availability of services is wider-reaching (to those in remote, island locations, for example) + Availability of services restricted to those with access + Knowledge can be shared more easily + More learning opportunities thanks to VLEs and MOOCs + Gap widens due to [causes of the digital divide] + Gap narrows due to affordability of devices facilitated by hosted applications (lower device storage and processing costs if hosted)

Level	Mark	Descriptor (AO3 – Analyse)
	0	No rewardable material.
1	1–3	There will be some attempt at analysis. This may be limited to a review / restatement of the problem or a description of the scenario. There will be limited explanation of how the elements that have been analysed impact on the scenario / goal. Outcomes of the analysis will be briefly stated but they will often lack clarity. The response will lack clarity and organisation.
2	4–5	There will be evidence of analysis. Several aspects from the scenario / goal / problem will have been examined to identify impacts such as when, why, where, what and how? Outcomes of analysis will be explained with some clarity, though this may not be in detail. The response will show some focus but it may not be well organised.
3	6–8	There will be clear evidence of analysis. The analysis will have identified relevant points in the scenario / goal. The outcomes of analysis will be explained in detail. The response will show good focus and organisation.

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5a	Any **one** from: ● The Internet ● A network that uses third-party infrastructure.			**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark

5b	**Two** descriptions such as:
	● Gesture interface (1)
	  allows **data entry** for those with low levels of **mobility/dexterity** (1)
	● Braille keyboards (1)
	  would allow those with **visual impairments** to **enter data** (1).
	● Reading pen (1)
	  allows users with **dyslexia** to interpret text (1)
	
	Award maximum 1 mark for 'data entry' (without stated need) if in either 'how it supports' column, if awardable content is in the linked peripheral device column.
		General peripherals for first mark, e.g. microphone /speakers/ mouse .	Accept other devices e.g.:
			
			- puff-suck switches
			
			- foot pedals
			
			- eye typer / iris tracker
				(4)

Question Number	Answer	Do Not Accept	Additional Guidance	Mark

5c	**Two** descriptions such as:
	● Can share printers (1)
	  to reduce printer costs (1)
	● Can share/store files/software (1)
	  so they are accessible by colleagues and pupils (1)
	● Can communicate (1)
	  using email (1)
			Linked descriptions required.
			
			Other examples:
			Roaming profiles
			Centralise admin/backup
			Control of user access rights.
				(4)

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5d	Any **one** from: ● Differential ● Full ● Partial. Allow 'Grandfather, father, son'.	Incremental		**(1)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5e	An explanation such as: Rules (1) and consequences (1) to prevent users from behaving inappropriately / encourage users to behave appropriately (1). OR Companies can protect their reputation (1) by preventing inappropriate actions of their employees (1) to avoid financial losses (1).			**(3)**

Question Number	Answer	Do Not Accept	Additional Guidance	Mark
5f	A description such as: To enable the exchange/sharing/sending (1) of files / information / messages / text / images / audio / video (1)	To communicate		**(2)**

Question Number	Answer
5g	Candidates should compare different points of view, giving evidence for each one. The response does not require a conclusion. The indicative content is not exhaustive/ prescriptive, and candidates should be credited for other relevant content. + Availability of work 24/7/365 + Personalised / adaptive learning + Organised (noticeboard / wall / assignment calendar) + Instant / automatic grading and gradebooks to monitor progress + Revision materials + Can increase contact with teacher beyond class time + Multimedia can be engaging + Accessibility for those who find attendance difficult + Collaboration - Could reduce face-to-face teacher contact so cannot ask for clarification as easily - Collaborative tools are not as personal as face-to-face - Limited assessment methods, overreliance on multiple-choice / closed questions - Expectations for engagement are raised so potential for lack of study/life balance - Hosted online so could lead to distractions - Could restrict access (digital divide)

Level	Mark	Descriptor (AO3 – Discuss)
	0	**No rewardable material.**
1	1-3	A limited number of points will be identified, which may only consider 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. The response will lack clarity and organisation.
2	4-5	A number of points will be identified, which may consider both points of view. Some points will be supported by evidence. The comparisons will include links to the scenario but may include some generic points. The response will show some focus but may not be well organised.
3	6-8	A range of different points that consider both points of view. Most points will be supported by evidence. The majority of the discussion will link to the scenario. The response will show good focus and organisation.

	0	**No rewardable material.**
1	1-3	A limited number of points will be identified, which may only consider 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. The response will lack clarity and organisation.
2	4-5	A number of points will be identified, which may consider both points of view. Some points will be supported by evidence. The comparisons will include links to the scenario but may include some generic points. The response will show some focus but may not be well organised.