



Examiners' Report Principal Examiner Feedback

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In ICT (4IT1) Paper 01

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Introduction

The examination for this unit requires learners to explore how current and emerging digital technologies impact on the lives of individuals, organisations and society. This is an un-tiered paper that has been specifically designed so that questions that present the least challenge are more prevalent earlier in the paper, becoming progressively more difficult later on. This paper has been designed to be accessible, so that learners of all ability ranges will find questions that are both challenging and interesting throughout. Learners will find that 'command words' are used consistently in the paper to indicate the type of response expected. It is hoped that learners will demonstrate the knowledge, understanding and skills required to be confident users of ICT.

Stronger responses were more detailed, providing more than just simple statements, including examples and reasons where expansions or explanations were required.

In the extended questions, learners must demonstrate a better understanding of the requirement to 'discuss'. Learners should develop their use of subject-specific and technical language, responding in the context of the question and avoid giving generic responses,

Comments on individual questions

Question 1

Q1 (b) – Generally well answered by learners, demonstrating a general understanding of the concept. Most identifying that the storage was online or accessed over the internet and a few answers relating to “hosted” storage or applications. Some learners did not specify that the storage being referred to was **online**, with some just stating “storage” or that the storage was in another location or not on the device. This does not necessarily mean it is online or accessed via the Internet; data in a LAN could be stored on a server elsewhere on the network.

Q1 (d) – It was clear that learners were aware of the benefits of 4G versus 3G technologies. However, responses to this question would be improved if learners gave full consideration of the context given in the question. Weaker responses that suggested points such as “a better infrastructure” or that “it is more compatible with modern devices/more secure” would be examples of where the context was not considered. The most popular response was “quicker access to files” with some then going onto link this to bandwidth. Many learners correctly identified either “faster data transfer” or “greater bandwidth”, they did not link the two together to provide an explanation.

Q1 (e) – A well answered question overall. Most often learners stated MAC (address) or IP (address), and quite often all three possible responses from the mark scheme were given. Some learners stated ISP, this stand for Internet Service Provider and is not a method of identifying a device on a LAN.

Q1 (f) – Responses to this question would be improved if learners are clear with regards to the use/purpose of different software.

Q1 (g)(i) – Most learners were correctly identified that a gateway connects two different networks – often by giving the example of connecting a WAN to a LAN or vice versa. However, only few demonstrated a deeper understanding by explaining the gateway does this by translating data from one protocol to another. Some responses described a different piece of network hardware, such as a router, rather than a gateway. Responses to this type of question would be improved if learners are clear about the use/purpose of different (network) hardware.

Q1 (g)(ii) – Generally well answered by learners. The most common incorrect response was “mainframe”.

Q1 (g)(iv) – Learners were able to demonstrate an understanding of tethering. However, in terms of describing how a tethered device accesses the internet, the question appeared to be particularly challenging for many learners. Some learners did not reference how devices were connected, whilst some did not state what was being shared to access the Internet (e.g. mobile broadband, 3G, or 4G). Many learners referenced hotspots; however, this is an area providing connectivity, rather than the technology used to connect the devices. Some learners that were able to specify the technology used to make the connection, just stated “to share the Internet”. This in effect is a repeat of the question. Responses to this question would be improved if learners referenced the technology that is used to connect the devices and then be specific about what is being shared.

Q1 (g)(v) – This question appeared to be particularly challenging for many learners. Learners recognised the term SIM card and stated what “SIM” stood for but were unable to then explain the role. Some learners did identify it was needed to connect to the mobile phone network. There were several responses incorrectly referring to “connecting to the Internet” rather than the actual mobile phone network. Some responses referenced storing the data about the account, but did not then elaborate beyond this point. A few responses referenced activities that could be done through Wi-Fi, without a SIM, such as downloading applications or making phone calls and are therefore not the role of the SIM. Responses to this question would be improved if learners are clear with regards to the use/purpose of different items such as SIMs.

Q1 (h)(i) – A well answered question. Learners appear to have a sound understanding of the term “copyright”.

Q1 (h)(ii) – Most responses mentioned “file size” but were then not linked to bandwidth requirements. Frequently, expansions on file size tended to reference speed. This is in effect a repeat of the question. Weaker responses mistook memory and access times for file size and bandwidth.

Question 2

Q2 (a)(v) – Many learners were able to demonstrate their understanding of how defragmentation works. Weaker responses did not start in the leftmost box or grouped the correct letter blocks (in order) together but left a gap between each set of blocks. This would not happen when a defragmentation utility has been run. Some responses showed additional or missing letter blocks. Responses to this question would be improved if learners chose an

approach that could include checking off the blocks in the before state as they complete the after state.

Q2 (c)(i) – Generally answered well by most learners, understanding that application software is for the user to carry out tasks. Some learners also were able to list different examples of the tasks that could be carried out such as “creating a digital product”. Weaker responses did not clarify that it would be the user utilising the software to carry out these tasks or identified names of software which did not describe the purpose. Some responses mistook application software with system software. Responses to this question would be improved if learners are clear with regards to the use/purpose of different software.

Q2 (c)(ii) – Popular responses identified that open-source software is “free” or “cheaper” in comparison to proprietary software. The next most popular answer related to the customisation / modification of the software and being able to fix bugs. A few responses identified longevity, community support and interoperability. Some responses that had identified customisation or fixing bugs as the first benefit, then mentioned “accessing the source code” as the second. This is in effect a repeat of the point already mentioned. Responses to this question would be improved if learners give responses that are clearly discrete from each other and to remember “hosted applications” is not the same as “open-source software”.

Q2 (e)(i) – Learners responded confidently to this question, with many able to accurately identify the features of secure passwords. Common answers included the use of mixed character types, sufficient length, and avoiding personal information, showing strong awareness of cybersecurity best practices. Weaker responses broke up the elements of marking point 2 as three separate features. A few responses listed reasons for securing the password or advice, such as changing the password frequently, rather than the features of a secure password.

Q2 (e)(ii) – Generally learners were able to explain that file permission was being used to prevent access. However, the precise nature of file permissions (user rights giving them read or write access to files) appeared to be particularly challenging for many; instead referencing password protection of files or encryption.

Q2 (e)(iii) – This question was usually well answered. Most learners had an appreciation of the uniqueness of biometrics and that they are more difficult to steal compared to passwords. A few learners used other acceptable words for replicate such as copy or mimic. Weaker responses suggested biometrics could not be guessed. It is important to remember that biometrics relate to physical characteristics of humans.

Q2 (f)(i) – A well answered question with most learners identifying “RAM” or “Random Access Memory”. Weaker responses identified “ROM”. This example was given in the stem of the question; responses to this question would be improved if learners ensure the response they give is discrete from the given example.

Q2 (f)(ii) – Generally answered well with most learners stating that ROM is “non-volatile”, “permanent” or “cannot be edited”. Weaker responses mixed up volatile with non-volatile. Responses to this question would be improved if learners have a more thorough understanding of what these terms mean.

Q2 (g)(i) – Learners were able to identify that Laptop 1 would be able to run more programs at the same time or that performance would be improved. Weaker responses struggled to then make the link that this would result in less reliance on virtual memory. Responses to this question would be improved if learners qualify responses such as “faster”. An example of an acceptable qualification would be “faster performance”. It is important that learners have clarity regarding the differences between memory and storage.

Q2 (g)(ii) – Most learners demonstrated a basic understanding that each program requires access to memory to function. However, a few responses were able to extend this point to explain how insufficient memory allocation can lead to system crashes or vice versa. Weaker responses wrote about the management of storage rather than memory management and optimising performance. Some responses identified further roles of the operating system rather than explaining the use of memory management.

Q2 (h) – Most learners attempted this question, with the most common responses being “2.4 billion” or “2,400,000,000”. When the response was incorrect, in most cases it was 24 billion, or 24 million (or a variation of this). Responses to this question would be improved if learners are clear about the number of 0s in such responses. Encouraging the use of spaces or commas at appropriate points could support learners in ensuring they have put enough.

Question 3

Q3 (a) – Generally well answered question with most learners stating “keyboard” and “mouse”. A few responses stated “screen” (an output peripheral) without specifying it being a “touch screen” (an input peripheral). Responses to this question would be improved if learners give responses that are specific and clearly discrete from each.

Q3 (b) – Learners were asked to describe two impacts, it didn’t specify whether these had to be positive or negative, most learners focussed their responses on the positive. Most learners attempted this question; global workforce, global market, located anywhere, and not travelling, were the most popular responses. Some weaker responses suggested “the organisation can be online/have an online store”, however, this did not specify that the business could therefore be located anywhere. Where responses focussed on improved communication, a suitable linked point was not made. Mentions of big/transactional data and targeted marketing were rare. Where it was mentioned, weaker responses discussed the benefits of advertising online, rather than explaining how access to transactional data can help companies to understand customer behaviour. Responses to this question would be improved if learners clearly linked the response to the focus / perspective of the question.

Q3 (c) – This was a popular question, with only a few learners not attempting a response. Generally, it was well answered with a range across all the marking points in the mark scheme. The most popular response came from “being able to access files on any device from any location”. Other popular responses related to “less storage required on the local device” and “automatic backup”. Weaker responses did not provide a linked point / expansion.

Q3 (d) – Many learners understood the reasons for not opening an email attachment from an unknown sender and were able to explain the impact on both the device and personal data files.

Q3 (e) – Most learners answered across all three examples in the mark scheme. A common issue in weaker responses was where cyberbullying and trolling were listed as two separate points. It is important in this style of question that responses are clearly discrete from each other. Here learners were asked for negative **social** impacts, not just negative impacts. Some responses identified environmental impacts or impacts to the individual, such as addiction. Addiction could potentially lead to a wider social issue, but that would require further steps in the thought process to get there. Therefore, responses to this question would be improved if learners link the response to the focus / perspective of the question.

Q3 (f) – Learners performed strongly on this question, learners showed good knowledge of how to improve safety features on gaming websites; “report” and “block” were the most popular responses. Some responses, such as “encryption”, “firewalls”, “anti-malware” are not features of an online community.

Q3 (g) – Most learners answered this question well. Responses came from most of the marking points in the mark scheme. Weaker responses often identified more safety features or features that could not be applied to the online community / gaming website context. Therefore, responses to this question would be improved if learners link the response to the focus / perspective of the question.

Question 4

Q4 (a) – Most learners attempted this question. The most popular responses related to “basket”, “checkout” or the “product catalogue”. Some responses gave two features from a product catalogue. It is important in this style of question that responses are clearly discrete from each other. Weaker responses talked about content or styles, such as adding colour or the name of the website rather than features in a shopping website.

Q4 (b) – The question appeared to be particularly challenging for many learners. Although responses mentioned “cookies”, few did not go onto explain that they were storing the information about the user’s selections. Weaker responses described cookies in general and how they are used to display “similar products to ones previously selected”. Whereas some responses explained where the choices were shown, not how they are kept there even after reloading. Responses to this question would be improved if learners are aware of the different types of cookies, what they store and how they are used.

Q4 (c) – It was uncommon for learners to achieve both marks. Whilst some demonstrated an awareness of user rights under data protection legislation, they struggled to relate or link that to a specific principle under the legislation. Whereas others identified several principles, but did not link that back to the rights of the user in terms of their control over their personal information.

Q4 (d) – Learners frequently identified job losses as a potential impact of using AI, showing a basic understanding. Many responses did not expand on this impact by explaining how AI tools would be used to automate repetitive tasks or businesses using AI to help generate them instead of employing a specific web design company or team. Responses focussed on the negative impact and few learners considered the positive impact and potential new job opportunities within the industry that AI could offer. Responses to this question would be

improved by reading around new and emerging technologies to be able to explain / discuss their impact.

Q4 (e) – The question appeared to be particularly challenging for many learners. Responses frequently identified responses that showed the advantages of networks over stand-alone devices, rather than peer-to-peer over client-server networks. Responses such as “sharing files” apply to both types of networks. Stronger responses discussed the cost of setting up a peer-to-peer network being cheaper.

Q4 (f) – Generally, this was well answered. Stronger responses were related to the context, possibly from own family’s experiences during lockdown. There was a good awareness of the benefits of working flexibly, being with families and work-life balance. Good balanced comments about becoming lonely and impacting mental health were present. A few responses touched on assessing the benefits of overall job satisfaction or concluding about whether it is better to work at home, the office or do hybrid working. Weaker responses referred to the benefits and drawbacks to the company rather than Viren.

Responses to this question would be improved by:

- Avoiding repetition of the question at the start of a response. This is not necessary.
- Using the points to consider from the question stem to plan the response.
- Discuss the benefits and drawbacks for each point to consider aiding in the creation of a balanced response.

Question 5

Q5 (a) – Learners demonstrated excellent knowledge of the causes of unequal access to ICT.

Q5 (b) – The question appeared to be particularly challenging for many learners. Many responses gave a description of the digital divide rather than its impact. Stronger responses tended to focus the expansions. Few responses linked this to an increasing inequality/gap or how it would further disadvantage vulnerable communities. Again, the question did not specify whether the impact was to be positive or negative. Responses to this question would be improved with the clear identification of the impact (positive or negative) and then why this is the case.

Q5 (c) – Generally well answered, showing learners had good knowledge of environmental impacts, particularly those relating to “extraction of raw materials” and the “use of finite resources”. Again, responses tended to focus on the negative rather than the positive. Weaker responses related to the use of energy or pollution, both of which were already given in the question stem. Many responses focussed the disposal rather than manufacture of devices; manufacture was the focus of the question. Responses to this question would be improved if learners give ways that are discrete from the given example and takes into the account the focus / context of the question.

Q5 (d) – Responses to this question were very mixed. Learners recognised that results were “out of date” or “too broad”. Weaker responses did not go on to explain that filtering or key words needed to be more specific respectively. Responses to this question would be improved with the use of subject specific language, such as search terminology, specific key words and search filters.

Q5 (e) – Most learners recognise that keywords are used in search engines. Weaker responses suggested that “more” keywords should be used. This would not necessarily improve the search results. An improved response would be “specific” or “descriptive” keywords. It is important learners understand in these circumstances it is the quality of the keywords that is more valuable than the quantity of keywords in improving the search results. Some learners referenced the use of search operators. The use of search filters seemed to be an infrequent response.

Q5 (f) – Responses to this varied. Many responses did not give a range of justified points, nor consider the relevance to health-tracking apps and their use in health services. The negatives discussed were mostly RSI, eye strain, a lack of exercise and a lack of social skills. Learners were able to connect this to physical and mental health problems. Learners provided examples of the effect of extended computer use of the computer including eye strain, back pain, and headaches. Weaker responses tended to focus on a single, partially relevant point. Responses to this question would be improved by:

- Avoiding repetition of the question at the start of a response. This is not necessary.
- Using the points to consider from the question stem to plan the response.
- Discuss the positive and negative physical health effects and the positive and negative mental health effects, which would aid in the creation of a balanced response.

Paper Summary

Based on this paper, learners are offered the following advice:

- Expand and explain answers using examples and reasons, especially where more than a simple statement or list is requested.
- Where a context or scenario is provided, respond with the context of the question in mind.
- Read and interpret the question prompt to focus on the specific requirements and provide more relevant responses that address the critical aspects of the question.
- When required to give one **other** example/reason, ensure the response is **discrete** from the given example/reason.
- Know the difference between key language in the specification – for example use, purpose, content, feature; to understand what is being asked for in the question.
- Allocate time to plan responses to the extended questions.

