2023 VCE VET Information and Communication Technology external assessment report

General comments

The 2023 VCE VET Information and Communication Technology (ICT) examination paper addressed five modules that are taught concurrently with the VET Certificate III in ICT. The examination attempts to address most of the performance criteria outlined for each element in the modules.

Students are advised to:

* Read the whole stem of the question, identifying the information given and the people and roles in a scenario. Many students answered only the final part of the question and thus gave very general answers or answers outside the scenario.
* Avoid stating simply that something is efficient or effective. Something may be efficient because it is quicker, for example, but simply stating that it is efficient does not provide enough information.
* Where a list of answers is asked for, avoid saying the same thing repeatedly (e.g. ‘faster, quicker, takes less time’ is worth one mark, not three).
* Have a better understanding of the difference between something being clearly illegal and being unethical. Students need to explore more scenarios relating to ethics.
* Students should have a clear understanding of intellectual property law in Australia. They should also avoid confusing this with how it applies in other countries.
* When stating that something is unethical (e.g. if there is no consent) students should continue their answer and explain why this is a bad thing.

Specific information

The statistics in this report may be subject to rounding, resulting in a total of more or less than 100 per cent.

Section A – Multiple-choice questions

Correct answers are indicated by bold text and shading.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Question  | Correct answer | % A | % B | % C | % D | Comments |
| 1 | D | 1 | 2 | 0 | 97 |  |
| 2 | D | 11 | 3 | 25 | 61 |  |
| 3 | B | 5 | 93 | 2 | 0 |  |
| 4 | C | 0 | 0 | 97 | 3 |  |
| 5 | C | 1 | 2 | 96 | 1 |  |
| 6 | C | 10 | 0 | 70 | 20 |  |
| 7 | A | 54 | 10 | 30 | 6 | Laptop in A is connected to the 1 Gb switch, which is the fastest. |
| 8 | B | 3 | 91 | 1 | 5 |  |
| 9 | B | 15 | 40 | 8 | 38 | Students need to clearly understand the difference between a patent and a trademark. |
| 10 | B | 0 | 81 | 3 | 16 |  |
| 11 | A | 88 | 9 | 1 | 2 |  |
| 12 | D | 36 | 4 | 12 | 48 | Bundling cables can cause interference. |
| 13 | C | 16 | 3 | 76 | 5 |  |
| 14 | A | 16 | 30 | 20 | 35 | Education and cooperation are not ethics principles. |
| 15 | B | 14 | 64 | 5 | 17 |  |
| 16 | A | 72 | 5 | 16 | 7 |  |
| 17 | B | 1 | 70 | 21 | 8 |  |
| 18 | A | 31 | 24 | 38 | 7 | The best person to act on the matter would be the IT manager, who is also Patrick’s manager. |
| 19 | D | 2 | 3 | 18 | 78 |  |
| 20 | C | 3 | 10 | 76 | 12 |  |

Section B – Short-answer questions

Question 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 21 | 44 | 35 | 1.1 |

One mark was awarded for giving the ethical reason and one mark for the explanation. The explanation needed to be linked to the reason.

Reason (one of):

* privacy
* confidentiality/consent
* trust
* loyalty
* social responsibility

Students did not receive marks for

* stating that it is breaking privacy laws (breaking a law is not an ethical reason)
* stating that it is illegal (not an ethical reason)
* stating that it is unethical (they were told this in the question)

The following are examples of how this question could be answered:

Example1: It breaks the confidentiality of the parents. It is not the intended purpose of the contact details, so taking them to help the soccer club would pass on information that was entrusted to the school.

Example 2: To respect privacy of parents as they did not give permission.

Question 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 3 | 42 | 55 | 1.5 |

Any two of (must link to solving the new issue):

* Quality: Checking logs might improve the quality of your support.
* Recurring: You might already have information on the client that might be helpful.
* Reocurring: The issue may be similar to previous ones so a fix might exist already.
* Time for fix: Previous logs may say how long the fix lasts for.
* Status check: Previous logs may show if the issue is at or above your level of expertise.
* Removes trial and error: if the issue already exists in logs.
* Speed: It may increase the speed of your fix.
* Status or progress of the issue
* Identifying the client: If the person is who they say they are.
* Education of staff to prevent issue.

Students only received one mark if the ways were too similar.

Question 3a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 6 | 21 | 73 | 1.7 |

One mark each for any two of the following:

* test the equipment
* analyse test results
* diagnose the fault
* review logs
* develop/create a repair plan
* implement the solution (if in Remona’s ability level)
* escalate the issue (if above her ability level)
* obtain ICT components and repair fault
* find out if it is within Remona’s scope of abilities
* notify/contact the client about what you are going to undertake

It was stated in the question that the fault was already identified. Steps needed to be of the kind that happen after the fault was identified.

Most students were able to clearly state two steps.

Question 3b.

|  |  |  |  |
| --- | --- | --- | --- |
| Marks | 0 | 1 | Average |
| % | 11 | 89 | 0.9 |

One mark was awarded for any one of the following:

* Record maintenance, fault data and equipment modifications according to organisational standards.
* Identify and report instances where preventative measures were required.
* Dispose of faulty parts and other waste according to environmental guidelines.
* Review and update maintenance and fault data and report outcomes to relevant personnel.
* Inform the client that it is finished so they can resume working.
* Undertake client feedback/evaluation so Remona can improve her work processes.
* Test to see if the fault is repaired.
* Test the solution to see if the fault is repaired.
* Obtain secure sign-off from the client to record that the problem is fixed.

Answers that repeated the student’s answer to part a. were not accepted.

Answers needed to include enough detail for a ‘describe’ instead of a ‘list’ response.

Question 4a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 9 | 47 | 44 | 1.4 |

One mark was awarded for each technique for a maximum of two.

* interview with the client
* survey or questionnaire/form
* directly observe the client completing the task
* email the client
* active listening
* calling the client

Many students described two types of the same technique (for example two types of written responses). This only received one mark.

Question 4b.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 8 | 20 | 42 | 31 | 2.0 |

One mark was awarded for each area of improvement for the organisation, for a maximum of three.

* customer service / communication skills
* technical ability
* technical knowledge
* ability to supply the best solution
* training and support/clarification
* speed of work/fix
* cleaning up
* safety
* response time
* improved reputation

Many students rephrased the same area of improvement; marks were only awarded for different improvements.

Question 5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 13 | 38 | 49 | 1.4 |

One mark was awarded for the purpose and one for the location.

Purpose (any one of the following):

* to prevent malicious access / traffic to the network from the internet
* to filter, detect and block unwanted traffic
* packet inspection
* to act as a barrier for internal / external network access

Many students responded that firewalls check for viruses and malware; they were not awarded marks.

Location: The firewall should be placed between the router and the internal network and is often integrated with the router on a SOHO network.

* between router and switch
* before the router and after the modem
* between router and ISP
* start of network and on the network

Some students placed the firewall before the network, which meant that it was not on our network but on the internet, and so received no marks. This emphasises the importance of students clearly answering what they are asked and not writing a vague rote response to a definition.

Question 6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 14 | 49 | 37 | 1.2 |

For full marks, the advice needed to include a reason.

* Inkjet cartridges are expensive for the amount you print.
* Laser printers print faster per page.
* A laser printer on a network can have multiple devices connected to it.
* Overall laser printers are cheaper to run.
* Laser printers reduce e-waste as the toner cartridges last longer.
* Laser printers have higher duty cycle / longer life.
* Laser printers have network capability.
* Laser printers have enhanced management features.
* Laser printers are compatible with a range of devices.
* Laser printers have higher print quality.

Some students stated that laser printers used no ink or toner, which was awarded no marks.

Question 7a.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 13 | 18 | 24 | 45 | 2.0 |

An organisation or agency’s privacy policy must tell you (three of):

* their name and contact details
* what kinds of personal information they [collect](https://www.oaic.gov.au/privacy/your-privacy-rights/your-personal-information/collection-of-personal-information) and store
* how they collect personal information
* where it is stored
* the reasons why they need to collect personal information
* how they will [use and disclose](https://www.oaic.gov.au/privacy/your-privacy-rights/your-personal-information/use-and-disclosure-of-personal-information) personal information
* how you can [access your personal information](https://www.oaic.gov.au/privacy/your-privacy-rights/your-personal-information/access-your-personal-information), or [ask for a correction](https://www.oaic.gov.au/privacy/your-privacy-rights/your-personal-information/correct-your-personal-information)
* how to lodge a complaint if you think your information has been mishandled
* how they’ll handle your complaint
* if they are likely to disclose your information outside Australia and, if practical, which countries they are likely to disclose the information to
* how to opt out of sharing of information
* actions taken after a breach of information.

Many students repeated the same idea.

A privacy policy does not need to include the actual security measures.

Question 7b.

|  |  |  |  |
| --- | --- | --- | --- |
| Marks | 0 | 1 | Average |
| % | 81 | 19 | 0.2 |

Because it makes more than $3 million as an Australian company.

This question was answered poorly, with responses indicating why it is good practice to have a privacy policy rather than why it is required.

Question 8a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 11 | 22 | 67 | 1.6 |

The scenario involved a school located 2500 km away from the nearest city. Solutions that would not work in this case (e.g. daily or overnight delivery) were not accepted.

Any two of the following.

* paper
* toner cartridge
* printer cartridges
* spare printer / backup printer
* printer heads
* nozzles

Students who wrote the same item twice using different words (e.g. ‘toner’ and ‘ink’) received only one mark

Question 8b.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 23 | 45 | 26 | 6 | 1.2 |

Students were asked to propose a system the school could use to maintain its ICT systems. Possible ideas could include any of the following:

* Develop a maintenance plan.
* Survey the school and identify ICT components that will be required.
* Develop contingency plans for the replacement of ICT equipment while repairs of faulty equipment are being done.
* Keep a printing log so the number of pages can be recorded, and paper ordered earlier.
* Train ICT staff in the repair of the devices.
* Implement a service level agreement (SLA).
* Implement a bulk ordering strategy.
* Source alternative suppliers.
* Track usage / impose a limited printing system.
* Devise a disaster recovery plan.
* Order common replacement parts ahead of time.

Responses that suggested charging students a fee needed to state that this was to decrease wastage. Students who made this suggestion so as to build up the budget so you could purchase more items were only awarded one mark.

It appeared that a considerable number of students do not know the basic operation of a printer. Students should know what consumables a printer requires and what items an SLA would specify that school staff definitely cannot repair.

Given the distance factor, students suggesting a spare printer were awarded the mark. Good responses suggested an arrangement with another organisation (e.g. local shire offices) to use their printer in an adverse situation.

Question 9a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 22 | 41 | 36 | 1.1 |

Many students seemed to confuse router and modem. Students need to be aware that the item that is colloquially referred to by consumers as a router (e.g. by Telstra, Optus etc.) is likely to be any of a router, modem, switch or firewall. ICT students need to refer to a router as one specific component.

One mark was awarded for explaining what the component is, and one for linking it to the scenario.

This question emphasises the need to answer the scenario.

* Web server: Used to host the business website and store the website’s files so Parker can have a website for his electric bike business.
* Wireless Access Point: Used to provide wireless connection to the office space so that Parker can have network connection without having to have a wired connection. Students writing about multiple devices being able to connect wirelessly in the office were also awarded the marks.
* Router: Used to give the network access to the modem so that Parker’s business can have internet access. It receives internet connection from the modem, communicates with the ISP, assigns the IP addresses to the devices, and acts as an intermediary between Parker’s office and the internet. Students simply stating that the router connects to the internet (which is the modem’s job) were not awarded marks. Students stating that a router connecting two networks (or using the router as a switch) were not answering the scenario, as that is not part of Parker’s office, and thus were not awarded marks.
* Switch: Used to connect the local devices, such as the server, WAPs, printer and other wired devices together; splits the traffic to several devices.

Question 9b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 31 | 31 | 38 | 1.0 |

One mark was awarded for a correct definition of a network-attached storage (NAS) device, and one mark for why it would be helpful.

* NAS is a network-attached data storage device that connects to and is accessed through a network, instead of connecting directly to a computer.
* It would help Parker by:
* centralising the file storage
* facilitating backup process
* reducing hardware costs
* not requiring external internet for data storage
* enabling storage and retrieval of data from a centralised location

Following is an example of how the question could be answered:

Network-attached storage (NAS) refers to a device where large amounts of data can be stored on a network, thus making it accessible to members of the network from their devices.

Question 9c.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 29 | 39 | 32 | 1.0 |

One mark was awarded for differentiating between a NAS and a server, and one mark for giving the reason.

Definition: NAS is only for storage; a web server is designed for traffic.

Reason (one of):

* NAS has no processing power.
* NAS is slower in speed.
* NAS is vulnerable to data breach / security issues.
* NAS has limited web hosting features.
* There are security concerns for Parker’s data.

Students just stating what a NAS device and web server do, without indicating why a NAS is unsuitable to Parker’s situation, received one mark.

Following is an example of how this question could be answered:

A NAS would not be recommended as a place to host a web server as it would not be as secure as a server hosted externally or a dedicated server. The NAS would need to have several people access it (including external access), whereas a web server should have limited people accessing it. The amount of external traffic to a NAS should be limited.

Question 10a.

|  |  |  |  |
| --- | --- | --- | --- |
| Marks | 0 | 1 | Average |
| % | 13 | 87 | 0.9 |

Any one of the following:

* loss of data
* downtime
* lost income / financial loss

Most students were able to articulate the consequences of ineffective data backup.

Question 10b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 9 | 49 | 43 | 1.3 |

It should be safer because:

* it is offsite/cloud
* it is daily

Fix:

* retrieval of backup from alternative location
* daily backups are only losing one day’s data

Following are examples of how the question could be answered.

Example 1: By having offsite storage, the data is protected from any onsite issues and can be restored as per the latest backup.

Example 2: Daily backups mean that if data is corrupted or destroyed, the data that is restored is the most recent possible.

Question 11a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 45 | 47 | 8 | 0.6 |

One mark was awarded for stating that the programs are his own work and one mark for stating it is automatically covered.

No marks were awarded for simply stating that it is his intellectual property or that it is covered by the Act.

It is recommended that students learn what is and is not covered by the Copyright Act 1968 specifically in Australia.

Question 11b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 13 | 46 | 41 | 1.3 |

‘Fine’ or ‘imprisonment’.

‘Legal action’ was not awarded marks as this is not necessarily a penalty.

Question 12

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 22 | 28 | 41 | 8 | 1.3 |

One mark was awarded for stating that the printers were not on the same subnet/network, which is required for communication. Another mark was awarded for stating that the printer needs to have the same network/subnet as the computer (not the other way around), and one mark for the IP address that the printer needs to be, e.g. 10.1.1.106 (must have the 10.1 at the front of it).

Question 13a.

|  |  |  |  |
| --- | --- | --- | --- |
| Marks | 0 | 1 | Average |
| % | 13 | 87 | 1.3 |

Software D: it is open source, meaning it is public domain and has no cost associated.

Most students understood the connection between public domain and no cost.

Question 13b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 29 | 5 | 65 | 1.4 |

Software C only.

A second mark was awarded for mentioning that there is no sharing of passwords or access control.

Following is an example of how the question could be answered:

Software C has the best security access. The IT department is in control of user access and software updates via the server. There is no sharing of passwords between users.

Question 13c.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 54 | 10 | 35 | 1.0 |

One mark for selecting Software B, one mark for stating why it is the best value. Responses needed to relate to SAM principles.

Following is an example of how the question could be answered:

Software B – cost is $4800 (12 staff), and each user gets their own login details (admin share), so security is enhanced for the accounting data. This is less than the $6000 for Software C.

Some students chose software C. They were awarded two marks if they had mathematically indicated that it allowed expansion of staff, e.g. they would need to hire three additional staff to get the best value out of C in comparison to B. This required a more detailed explanation.

Question 14a.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 30 | 27 | 22 | 22 | 1.4 |

Students were required to pose three questions to a client in order to identify their hardware/software requirements. One mark was awarded for each item. Any three of the following were acceptable:

* What type of software do you need?
* How many licenses do you need?
* Do you require networking?
* What is your budget?
* What is your security requirement?
* What is the timeline for implementation?
* Will you need to store a lot of files?
* What is the main task at your company?
* How many devices do you need?
* What kind of after-sales service are you interested in?
* What operating service are you working with?

Many students wrote responses to fault finding. Where these responses were suitable for purchasing and upgrading, marks were awarded.

Question 14b.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | 4 | Average |
| % | 28 | 7 | 40 | 1 | 24 | 1.9 |

Students were required to list and describe two techniques for documenting findings. Students who answered 14a. as fault-finding responses were awarded the marks in part b. if the response was a valid data recording technique.

Two marks were awarded for each technique, broken up into one mark for naming a valid documentation technique and one mark for the description of how it was done.

The following are possible answers:

* Database: Enter notes into the Help desk database. This tells the next person what you did so they can see notes for any follow up.
* Email: Email the client a summary of what you found with the information that they have provided.
* Report: Produce a report with recommendations to proceed with an upgrade or new product.
* Spreadsheet/table: Create a spreadsheet to list each item required.
* List: Create a word-processing document with solutions in a list.
* Priority assignment: Create a list of priorities in terms of job completion.
* Survey response: Collate and analyse the response for process improvement.

Question 15a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 33 | 29 | 37 | 1.0 |

20/21–23 °C

‘Describe’ means to state the numbers and the ranges of efficiency.

Following is an example of how this question could be answered:

The optimal temperature range for the room temperature is 20/21–23 degrees. Work efficiency stays above 90% at this temperature range.

Students who read the graph accurately were awarded for any sensible response (e.g. 20.3–22.9 °C).

Students giving a number rather than a range (e.g. 23) were not awarded marks.

Question 15b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 25 | 39 | 36 | 1.1 |

* Use and disclosure of information
* Collection of sensitive information must be consensual

Some students stated the privacy principles by number, and these were accepted when correct.

Question 15c.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 20 | 25 | 31 | 25 | 1.6 |

Any three of the following:

* Write a privacy policy that complies with the Australian Privacy Principles.
* Publish and share the policy with the students.
* Obtain written consent to collect the personal information.
* Inform the students how their data will be used.
* Create a consent form and get students to sign it.
* Store the consent form in a secure location for easy retrieval.

Students need to understand that consent needs to be written and signed by the person giving consent.

Question 15d.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 22 | 69 | 9 | 0.9 |

1. assess 2. take remedial action. 3 notify. 4 review.

The Assessing Panel found that two legitimate sources available to students and teachers had two different orders for approaching a notifiable data breach. Both answers were accepted, as they both indicate a good understanding and did not advantage students who were definitely wrong.

Correct order for the response: 3,1,2,4 or 3,2,1,4 (as per new government website)

Question 16a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 17 | 34 | 49 | 1.3 |

Any two of the following:

* What is your budget?
* What is your business growth strategy?
* How many staff need access?
* What type of information needs to be recorded?
* Where does this information need to be entered/accessed?
* How many devices do you need?
* What is the number of staff?
* What range of signal is required to reach all parts of the cafe?
* What type of internet connection do you have?

Accepted responses were restricted to non-technical questions: a cafe manager is unlikely to know the answers to technical questions.

Question 16b.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | 3 | Average |
| % | 43 | 16 | 37 | 4 | 1.0 |

Good responses linked the table on page 20 with the graph on page 21. The correct answer was 802.11 G.

Following are examples of how the question could be answered:

Example 1: The 802.11 G transmission type enables adequate bandwidth for required wireless connections. CATs and fibre are wired so they would not be satisfactory for a wireless network. Bluetooth has more security issues, so it is also not satisfactory. 4G and 5G are provided by telecommunications companies and are not for use in SOHO networks.

Example 2: 802.11 N and 802.11 AC are also wireless but cost much more so it would not be OK according to the SAM principals in ICTSAS312 – Provide basic system administration.

Two marks could be awarded for a wired option as long as speed/cost and valid reasoning are discussed clearly.

Question 16c.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks | 0 | 1 | 2 | Average |
| % | 88 | 9 | 3 | 0.1 |

Access NAS before speed test

One mark was given for stating that the printer should be done last or another valid order solution, and another mark for stating why.

As a general rule, you should make sure your computer system is working before you test your online connections.

No marks were given for simply stating that it is ‘wrong order’, because it is too vague.

Following are examples of how the question could be answered:

Example 1: Lucy should have ‘access to the NAS’ before doing an internet speed test. The NAS is used to hold backups for the network. She needs to ensure the internal network and backup storage are working before accessing the external internet in case there is an external threat and a backup needs to be accessed immediately.

Example 2: The speed test should go last because the internal network should be addressed before the external internet is accessed.

Question 16d.

|  |  |  |  |
| --- | --- | --- | --- |
| Marks | 0 | 1 | Average |
| % | 84 | 16 | 0.2 |

Any one of the following:

* intrusion detection
* set up passwords for guest wi-fi

Responses to this question, along with those for Question 5, indicated some confusion between intrusion detection and malware protection.