

STUDENT NUMBER Letter

VCE VET INFORMATION AND COMMUNICATIONS TECHNOLOGY

Written examination

Thursday 27 October 2022

Reading time: 11.45 am to 12.00 noon (15 minutes)

Writing time: 12.00 noon to 1.30 pm (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	20	20	20
B	21	21	70
			Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, rulers and one scientific calculator.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.

Materials supplied

- Question and answer book of 19 pages
- Answer sheet for multiple-choice questions

Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions**Instructions for Section A**

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1; an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Question 1

Rodney's telecommunications company has a range of clients.

Which one of the following is an ethical consideration for Rodney's company?

- A. privacy
- B. integration
- C. network design
- D. password protection

Question 2

Which one of the following is a physical security feature that may be installed in a small office?

- A. a firewall
- B. access hierarchy
- C. swipe card access
- D. username and password

Question 3

Companies that offer 'licence-free software' are protected under which type of intellectual property (IP)?

- A. patent
- B. copyright
- C. trade secret
- D. registered design

Question 4

When developing a system to record security access for staff, it is important to

- A. allow all staff the same clearance levels.
- B. allow staff to access all areas of the entire system.
- C. obtain a staff list to ensure all staff have access to important data used in the organisation.
- D. obtain a list of all staff security access requirements in order to grant clearance levels according to organisational needs.

Question 5

Ben is a network technician. His father has asked him to plan and set up a network for their family's home office.

When should Ben test the network?

- A. three to six months after handover to his father
- B. after the installation of the hardware and software
- C. testing is not necessary because Ben is an excellent network technician
- D. as soon as the network has been completed and handed over to his father

Question 6

The main purpose of a privacy policy on a company's website is to

- A. collect user data from visitors.
- B. inform customers if the company will sell their data.
- C. protect the company from cyber attacks and malware.
- D. inform users about how the company will collect, handle and process the data of its customers and visitors.

Question 7

The network at Willowcube Farm has been set up to block inbound connections from anonymous networks.

The reason for blocking inbound connections is to

- A. reduce data theft.
- B. block legitimate traffic to their network.
- C. reduce the amount of traffic to their network.
- D. reduce reconnaissance and malware delivery.

Question 8

A technician has been asked to diagnose and repair a fault in a RAM module in a computer system.

Once the fault has been identified, which step should the technician take next?

- A. Replace or repair the faulty part of the computer system.
- B. Obtain a test rig from the manufacturer to test the faulty part.
- C. Develop a plan for repairing the faulty equipment and software.
- D. Write a report detailing the fault and refer it to another department.

Question 9

When an organisation is no longer legally required to keep personal data, this data may be

- A. sold to another organisation that could find it useful.
- B. stored and archived for future reference by other organisations.
- C. deleted or de-identified so it does not relate to any particular person.
- D. used for another purpose, such as advertising new products that people may find useful.

Question 10

What is the most valid reason for an ICT team to work overtime?

- A. to review the Help Desk logs for recurring issues
- B. to change the backup tapes and monitor the error logs
- C. when there is not enough staff to complete the work in normal hours
- D. when maintenance is required out of hours and users are not present

Question 11

A computer company has provided a local newspaper with a recommendation for software that will meet the newspaper's requirements for a new accounting package.

What must the computer company do before they implement the software for the newspaper?

- A. They must purchase the licences for the software.
- B. They must produce the user documentation for the software.
- C. They must get approval to proceed from the head of ICT at the newspaper.
- D. They must get approval to proceed from the IT Help Desk at the newspaper.

Question 12

Which of the following details would **not** be included in a software register?

- A. name and version
- B. location of manuals
- C. purchase order number
- D. location of licence codes and agreements

Question 13

A data security company has been asked to recommend and install security controls for a small business that deals with the customer data of several businesses.

What is the next step that the data security company must take after it has identified the most suitable network technologies, devices and protocols?

- A. Present SOHO network design to the client and secure sign-off.
- B. Source, purchase and install what the data security company thinks the client needs.
- C. Obtain the specifications and the cost of identified components from the vendor and service suppliers.
- D. Review the newest available technologies, the fastest devices and the appropriate protocols to determine the client's requirements.

Question 14

When running multiple wireless networks across an office, interference can be reduced by

- A. using frequency separation.
- B. using 5 GHz channels only.
- C. using 802.11 b/g channels 3 and 4.
- D. requiring a password from all users.

Question 15

Sheridan is a new employee at a company and has been granted administrator rights on the network.

One security concern related to Sheridan being granted administrator rights is that Sheridan can

- A. use the networked printer.
- B. connect one network to another.
- C. connect only to an authorised device.
- D. use only their workstation to save their own work.

Question 16

Which of the following lists all the items that are provided by a SOHO network plan?

- A.**
- a troubleshooting tool
 - an approved definition of the work to be completed
 - a list of network protocols to be used
- B.**
- a troubleshooting tool
 - an approved definition of the work to be completed
 - a floor plan of the building
- C.**
- an approved definition of the work to be completed
 - a method for the systematic naming of each computer
 - a list of network protocols to be used
- D.**
- an approved definition of the work to be completed
 - a method for the systematic naming of each computer
 - a floor plan of the building

Question 17

A computer with an IP address of 192.168.0.5 is not able to connect to the user's favourite search engine. A technician runs a trace route command to determine what is happening.

Which one of the following results from the trace route command indicates that the problem exists inside the local area network (LAN) but not on the local computer?

- A.**
- | | |
|---|----------------|
| 1 | Transmit error |
|---|----------------|
- B.**
- | | |
|---|---|
| 1 | 192.168.0.5 reports the destination host is unreachable |
|---|---|
- C.**
- | | | | | |
|--|-------|-------|-------|-------------------|
| 1 | 4 ms | 14 ms | 3 ms | 192.168.0.252 |
| 2 | 3 ms | 2 ms | 3 ms | 10.0.0.82 |
| 3 | 18 ms | 9 ms | 13 ms | Melb.AusISP-com |
| The rest of the output lines were all... | | | | |
| # | * | * | * | Request timed out |
- D.**
- | | | | | |
|--|-------|-------|-------|-------------------|
| 1 | 4 ms | 14 ms | 3 ms | 192.168.0.252 |
| 2 | 3 ms | 2 ms | 3 ms | 10.0.0.82 |
| 3 | 18 ms | 9 ms | 13 ms | Melb.AusISP-com |
| 4 | * | * | * | Request timed out |
| 5 | 22 ms | 15 ms | 17 ms | Syd.AusISP-com |
| The rest of the output lines were all... | | | | |
| # | * | * | * | Request timed out |

Question 18

Where should a school store its IP, ethics and privacy policies and procedures?

- A. on the school's intranet
- B. in printable format, locked in the principal's office
- C. schools do not need any of these policies or procedures
- D. in a secure section of the network, which only the IT staff can access

Question 19

Hung works at the help line of a large software development company. Between calls, he has been writing a manual for the latest programs released by the company. Hung's manager is not aware that he is writing this manual and Hung should not be writing this manual without his manager's approval. To supplement his income, Hung intends to sell the manual to people who call the help line.

Which one of the following is correct?

- A. Hung does not own the IP rights to the manual because it was developed while he was at work, but he is entitled to sell it to supplement his income.
- B. Hung owns the IP rights to the manual because he alone developed it and he is entitled to sell it at work as it will assist people with the new programs.
- C. Hung owns the IP rights to the manual because he alone developed it, but he is not entitled to sell it at work during company time to supplement his income.
- D. The company owns the IP rights to the manual because Hung developed it while he was at work and any sales revenue from the manual should be paid to the company.

Question 20

A small not-for-profit organisation has repurposed an older computer as a hardware firewall by installing a fully customised secure firewall OS. After a recent power outage, the firewall did not auto-restart.

How should the settings be accessed to make the computer auto-restart when power is resumed after an outage?

- A. Go to the OS power settings.
- B. Restart the computer to access the BIOS/UEFI interface settings.
- C. Go straight to the BIOS/UEFI interface settings. Restart is not required.
- D. Restart the computer to refresh the OS and access the OS power settings.

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TURN OVER

SECTION B – Short-answer questions

Instructions for Section B
Answer **all** questions in the spaces provided.

Question 1 (2 marks)

State **two** responsibilities of a systems administrator with regard to software licensing in an organisation.

Question 2 (2 marks)

Maintenance of a laser printer includes replacing used toner cartridges and waste toner containers.

- a. List **one** safety procedure that should be followed when performing maintenance on a laser printer. 1 mark

- b. State what should be done with toner cartridges and waste toner containers that are removed from laser printers. 1 mark

Question 3 (2 marks)

Carmen has just started working with Rafael and has not been issued with a username and password to access the network. Rafael writes his username and password on a piece of paper and hands this to Carmen saying, ‘Use this until you receive your own’.

Give **two** reasons why Rafael’s actions would breach a typical username and password security procedure.

Question 4 (2 marks)

A secondary college has 112 teachers and 1125 students. Teachers have been visiting the IT Technical Support office with issues they have with their computers. They visit at various times of the day, expecting the technicians to help them with their computer issues immediately. This causes stress for the technicians and delays other work that needs to be completed by the technicians.

State **two** ways in which this situation could be improved.

Question 5 (3 marks)

a. Define the term 'intellectual property' (IP) and list **one** example of IP. 2 marks

b. Define the term 'privacy policy'. 1 mark

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Question 6 (6 marks)

Nikki is having a network installed at her salon. She can have up to eight clients and six staff at any one time. Nikki collects personal information about her clients, which is stored on a central server. Her staff access this information from three staff tablet devices.

- a. Describe **two** benefits of a SOHO network for Nikki’s salon. 2 marks

- b. Nikki does not know much about SOHO networks.
Describe the functional difference between a modem and a router, so that Nikki understands why both are essential for her network. 2 marks

- c. State the protections that a firewall would provide Nikki’s network. 2 marks

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Question 7 (3 marks)

When creating an online feedback form, assistance must be available to help a user correctly fill in the form. This assistance can be provided in more than one way.

Describe three appropriate ways in which this assistance could be provided.

1. _____

2. _____

3. _____

Question 8 (4 marks)

Recently, a highly dangerous vulnerability was reported in a number of versions of a component of Java as follows.

`log4j-core-*.jar`

The * was one of a number of vulnerable version numbers. This component is licensed for use on a free-of-charge basis and modifications are permitted if desired. Many companies are using it.

As a result, a significant number of software products contain this vulnerability, which permits system-level access on computers in which it is installed.

- a.** Describe what is meant by the term 'system-level access'. 1 mark

- b.** What are three steps that an ICT support person could take to help protect their organisation from this vulnerability? 3 marks

1. _____

2. _____

3. _____

Question 9 (3 marks)

Kyla works for an Australian company that creates and sells support materials for teachers of mathematics and English. She is concerned about her writing staff using images and logos without the correct permissions.

- a. State which Act the writing staff are likely breaching and the year in which the Act was introduced. 1 mark

- b. List two requirements that Kyla could implement so that her writing staff comply with the legislation. 2 marks

1. _____

2. _____

Question 10 (3 marks)

Rebecca is responsible for all system backups and security systems in her workplace. She has seven removable hard drives for the data, one for every day of the week (Monday to Sunday). Work continues over the weekend.

- a. Explain why Rebecca has seven removable hard drives. 2 marks

- b. How long would it be before a backup is overwritten? 1 mark

Question 11 (4 marks)

List three tasks, in the most logical order of completion, that should be completed when providing advice to clients about software, hardware or networking.

1. _____

2. _____

3. _____

Question 12 (3 marks)

- a. Why would approval be required before installing a wireless access point? 1 mark

- b. An installation plan is being developed for a wireless access point in an organisation based on the organisation's requirements.

State two factors that need to be considered when installing a wireless access point. 2 marks

1. _____

2. _____

Question 13 (5 marks)

Wendy works from home, providing guitar and violin lessons to adults and children. She has a very successful business and this is her main source of income. Wendy has been approached by a local music store, who would like the contact details of her students in order to mail them advertising material and special offers. The store has offered Wendy \$100 for every 10 contacts she supplies.

- a. Explain the ethical dilemma Wendy is facing with regard to the music store's offer. 2 marks

- b. Wendy's business recently opted into the *Privacy Act 1988*.

Why is Wendy currently not permitted to accept the music store's offer? 1 mark

- c. Outline the steps that Wendy will need to take with respect to her current students so she can accept the music store's offer. 2 marks

Question 14 (4 marks)

Tony works at the local IT store and a client has just logged a printing issue via the store's Help Desk portal.

- a. Describe two tasks that Tony needs to complete in order to review the printing issue that the client has logged.

2 marks

1. _____

2. _____

- b. Tony completed his review and provided the client with advice regarding the software and the printing issue. He is now required to obtain the client's feedback.

Complete the table below by numbering each step in the order in which it should be completed for Tony to properly obtain the client's feedback. Use the numbers 1 to 4, with 1 being the first step.

2 marks

Step	Number
Provide the client with instructions on how to complete a form or use other means for providing feedback.	
Review the feedback from the client to identify areas for improvement.	
Distribute the evaluation or feedback to the client.	
Create an appropriate evaluation or feedback form or other mechanism to gather feedback about the solution and the support provided.	

Question 15 (3 marks)

Ron and Ben work for a toy company. The company has created a toy that has a standard handle base for a sword, with interchangeable tops. The four tops (pirate, ninja, knight and dagger) are made of foam. The handle base lights up when a foam top is attached to it. This design is intended to enhance imaginative play and is a unique design in the toy market, so it needs to be registered as IP.

- a. State the purpose of registering the new design as IP. 1 mark

- b. Ron and Ben signed a confidentiality agreement when they started at the company.

How will this have an impact on their ability to talk about the toy at their local football club? 1 mark

- c. After eight months of excellent sales, Ron and Ben find out that another Australian company has started marketing a very similar design.

What feature of this new toy should Ron and Ben consider to ensure that there has been no infringement of their company's design? 1 mark

Question 16 (3 marks)

The following table shows the feedback received for a number of network wiring installation jobs completed by three teams from Monday to Wednesday during a particular week. All ratings are from 1 to 5, where 1 is the best score and 5 is the worst score.

Day	Team	Speed	Safety	Cleanliness	Overall	Feedback
Monday	Alpha	1	3	4	3	good network but left things a bit untidy
Monday	Beta	2	1	1	1	great job
Monday– Wednesday	Gamma	3	1	1	2	big job, well done
Tuesday	Alpha	1	3	3	3	–
Tuesday	Alpha	1	2	5	4	left a mess
Tuesday	Beta	4	2	1	2	satisfied
Wednesday	Alpha	1	4	3	3	fast result
Wednesday	Beta	3	3	4	3	OK

- a. State the area(s) in which the Alpha team needs to improve – speed, safety and/or cleanliness. 1 mark

- b. State the area(s) in which the Beta team needs to improve – speed, safety and/or cleanliness. Justify your response. 2 marks

Question 17 (2 marks)

Define ‘access control’ and give **one** example of how access control may be used in a networked system.

Question 18 (2 marks)

The receptionist at a local primary school has been told she must stand while working at the computer for a part of the day. The school has provided a 'lift desk' mechanism on top of her normal desk. When this mechanism is used, it raises the keyboard, mouse and screen to permit working while standing. The mouse cable has been severed twice in the last week by the 'lift desk' mechanism.

- a. Describe a solution to fix the problem with the mouse cable. 1 mark

- b. State why a second incident of the same type would be considered important to the ICT team. 1 mark

Question 19 (5 marks)

Almost every local area network (LAN) that connects to the internet will have a device acting as a DHCP server.

- a. What does DHCP stand for? 1 mark

- b. When setting up the DHCP server on a LAN, two important items to configure are the subnet mask and the gateway address.

Explain how these two configuration settings assist computers on the LAN to access the internet.

2 marks

Subnet mask _____

Gateway address _____

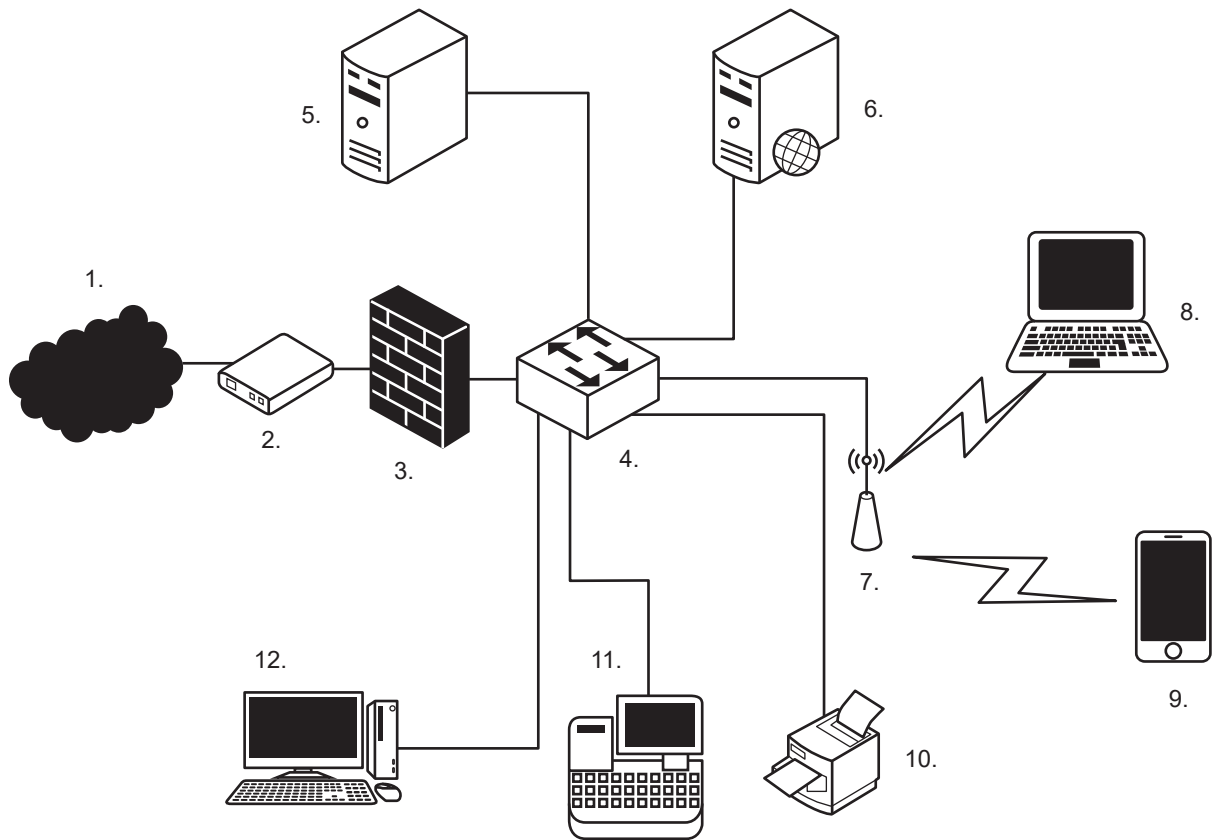
- c. The DHCP server also informs client computers where to go for DNS.

Identify what occurs during the conversion of information via DNS.

2 marks

Question 20 (7 marks)

Lizabeth’s Lattes is a cafe that has a network setup as shown in the diagram below. The network consists of public wi-fi access so that her customers can use contactless ordering.



Key		
1. cloud	5. server	9. mobile device
2. router	6. web server	10. receipt printer
3. firewall	7. public WAP	11. cash register
4. switch	8. customer laptop	12. POS computer

a. Identify **two** security issues with the network by circling each issue and stating what the issue is on the diagram. 2 marks

b. Identify and explain **one** cyber security vulnerability that would lead to a network threat. 2 marks

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- c. Outline what the business owner needs to do to deal with a data breach involving a customer getting access to another customer's details via the network. 3 marks

Question 21 (2 marks)

A well-secured computer network will usually have an intrusion detection system installed.

Describe what an intrusion detection system is designed to do.
