Victorian Curriculum and Assessment Authority

**Victorian Certificate of Education
2023**

Letter

STUDENT NUMBER

VCE VET INFORMATION AND COMMUNICATIONS TECHNOLOGY
Written examination

Thursday 2 November 2023

Reading time: 9.00 am to 9.15 am (15 minutes)
Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	20	20	20
B	16	16	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 22 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

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

A. guard dog

B. locks on doors

C. bars on windows

D. username and password

Question 2

The *Privacy Act 1988* applies to

A. advertising using actors' images without their permission.

B. a small business operating out of Ireland that turns over $3 million per year.

C. local Victorian government and council selling employee details to telemarketers.

D. a small business that turns over $3 million per year, selling employees' contact and address details to telemarketers.

Question 3

Greg, an ICT specialist, has been asked to provide advice to Jing about what to include in her home office network.

Greg's first step should be to

A. write up a proposal based on industry standards.

B. ask Jing what she needs to be able to do from the home office.

C. ask the local supplier what hardware and software they have available.

D. look at what is the latest available hardware and software on the market.

Question 4

A small business receives much of their correspondence via word-processed documents. From time to time, the business finds that they cannot read the documents they receive, as their software version is no longer compatible with that of the documents being sent.

The best solution to overcome this is to

A. buy more powerful computers.

B. complain to the software vendor.

C. upgrade their version of the software.

D. tell the people sending the documents to downgrade the document version.

Question 5

Linda volunteers at her children's primary school. While binding a large booklet for the Grade 4 teacher, she notices that the booklet appears to contain three complete novels from a particular author. Linda approaches the teacher, stating that she believes that the teacher has broken the law. The teacher says that schools are allowed to copy books for education purposes as long as they don't tell anyone.

Which law does Linda believe the teacher has broken?

A. *Spam Act 2003*

B. *Privacy Act 1988*

C. *Copyright Act 1968*

D. *Charter of Human Rights 2001*

Question 6

A client has reported through the Help Desk that there is a paper jam in the office printer.

The first step that the Help Desk should take to rectify the issue is to thank the client for using the Help Desk system and then

A. tell them to read the documentation.

B. tell them they should not use damp paper in the printer.

C. tell them that the jam will be attended to as soon as possible.

D. tell them that their policy states that all computer issues will be dealt with within 24 hours.
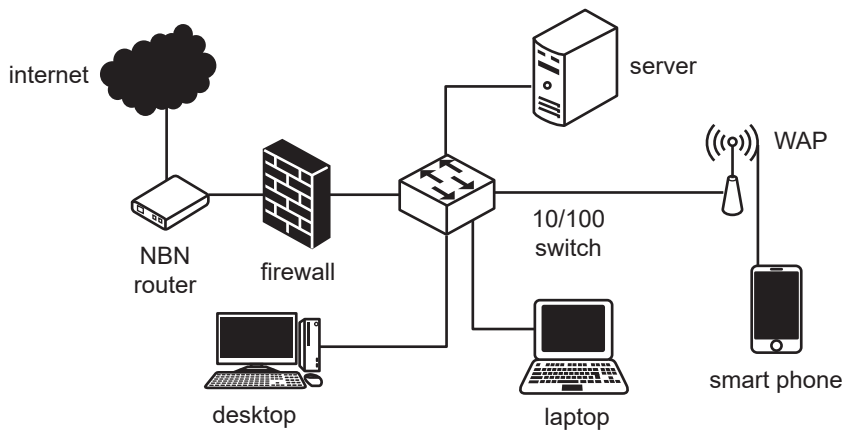
Question 7

Which one of the following network designs will give the best speed and safest connection for a person who wants to watch an instructional video on a laptop in an office?
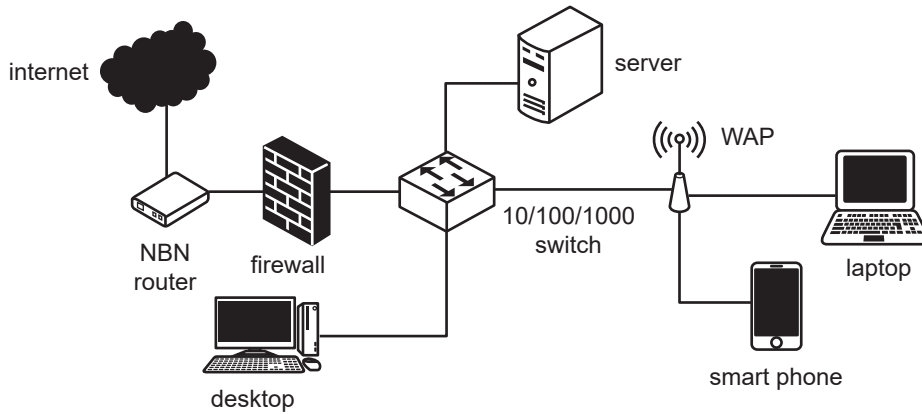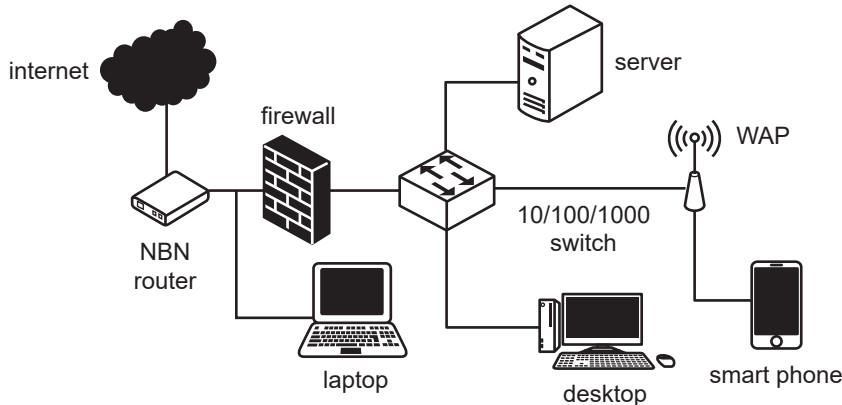
A.
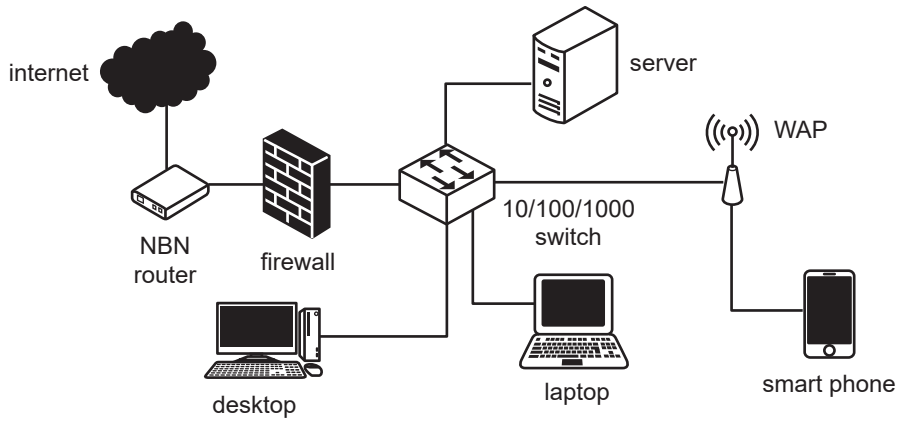
B.

C.

D.

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Question 8

When providing ICT advice to clients, what is one task that needs to be completed to obtain client feedback?

A. Check for new problems logged by the client.

B. Create an appropriate evaluation or feedback form.

C. Arrange a time with the client when support will take place.

D. Investigate and document support issues affecting the client.

Question 9

Michelle has been working on a robotic invention to make library cataloguing more efficient.

For her invention to qualify for a patent Michelle's robotic idea must

A. be original and novel.

B. be original, practical and innovative.

C. include the physical elements of the robot and its aesthetic design.

D. include the logo, colour scheme, brand identity and the code that was used to make the robot work.

Question 10

The five steps below are followed when reviewing a client support issue. The steps are not correctly sequenced.

1. Obtain client feedback and make changes.

2. Check for new problems logged by the client.

3. Investigate and document support issues affecting the client.

4. Check previous logs for similar problems or requests from the client.

5. Notify the client of the results of the investigation and provide advice and support on findings.

Which group of steps is in the **correct** sequence?

A. 5, 2, 1, 3, 4

B. 2, 4, 3, 5, 1

C. 1, 2, 3, 5, 4

D. 4, 5, 2, 3, 1

Question 11

An essential part of any Disaster Recovery Plan is

A. testing that the user documentation and the backups are able to restore the information system to full operational mode.

B. checking whether the topology of the network is consistent with a full backup and restore.

C. making sure all antivirus software is installed correctly.

D. checking to see that the firewall is set up correctly.

Question 12

Nelushka is about to begin her small office / home office (SOHO) network installation in a small office and she is planning her cable management.

Which of the following actions taken by Nelushka might create a bottleneck in transmission?

A. crossing power cables at 90⁰ angles

B. using a variety of coloured cables next to each other

C. pre-testing the cables using a network cable-testing device

D. bundling cables tightly together to make them look neat

Question 13

Which of the following best describes a Wide Area Network (WAN)?

A. all connected devices in a single business office

B all connected computers in a single business office

C. all connected devices in the business offices within a town

D. all connected computers in the business offices within a town

Question 14

A regional newsletter for a village is planning to go digital. This community organisation is full of mostly retired farmers with limited ICT skills. Craig, who is an IT specialist with the local council, has been tasked with helping to get the farmers online by creating a webpage that is easy to use. After an initial meeting, Craig returns to the office frustrated with the lack of computing skills shown by the community members. He complains to his team about the farmers and refuses to consider their concerns. He states that he will not provide any support for their project.

Craig's actions go against which ethics principle or principles?

A. fair treatment

B. education and fair treatment

C. social responsibility and education

D. social responsibility and cooperation

Question 15

A home office network is being set up with one computer, one printer and a router for connection to the internet. The router has a built in DHCP function.

The purpose of the DHCP is to

A. enable the IP address to host name translation.

B. assign IP addresses to the devices on the network.

C. communicate between the computer and the router.

D. provide IP addresses for the connection from the router to the service provider.

Question 16

Kristy is doing a security review of a public wi-fi network in a library. There are several network features in a wi-fi enabled network that can be switched off to reduce vulnerability.

Which of these should be switched off?

A. remote management

B. administrator password

C. service set identifier (SSID)

D. Wireless Protected Access (WPA)

Question 17

A large business provides each of its mobile employees with a notebook computer on which to complete information for their orders, sales and reports. To maintain the large stock of notebook computers, employees are asked to return their notebook computers to the office once a month for maintenance.

To overcome the lost day they should

A. buy better quality notebooks.

B. keep a supply of spare notebooks to use as replacements if needed.

C. allow employees to use their own computer if the supplied one needs repairing.

D. wait for issues to arise with their notebook and let employees then come and work in the office.

Question 18

Adriana is a teacher who has written several booklets as a member of her school's English teaching team. She is hoping to make some money by publishing a copy of one of her booklets because it will be helpful for all Year 12 English students. Adriana uses her school email to seek out a publisher for the booklet. Patrick works in the school's IT department and has become aware that Adriana is seeking to sell the booklet.

Patrick should

A. speak directly to the IT manager and let them know Adriana's plans.

B. do nothing as Adriana wrote the books, so they are her intellectual property.

C. send an email to the head of the English department letting them know Adriana's plans.

D. talk to Adriana and no one else about her plans.

Question 19

Sally works in a clothing store. She brings a sketchpad to work and draws simple logos and portraits during her lunchbreaks. While Sally is on leave, the store manager, Kevin, comes across her sketchpad, which she left in the staffroom. Kevin shows the drawings to the store owner, Maria, who decides to use several of the images and a logo to promote the store in a future sales promotion.

Which of the following statements is correct?

A. Kevin and Maria are free to use the images and the logo, as they are just simple sketches, of no importance.

B. Kevin and Maria are free to use the images but not the logo, as the logo is the intellectual property owned by Sally and the images are not considered intellectual property.

C. Kevin and Maria are free to use the images and the logo as Sally created them while working in the store and therefore the intellectual property is owned by Maria, her employer.

D. Sally owns the intellectual property of the contents of the sketchpad and needs to give her consent for the use of the images and logo before Maria and Kevin can use them in the promotion.

Question 20

Hao works in the accounts department of Seb's Concrete Supplies. He is consistently installing different applications onto his computer at work. Recently he came across an application that assists him in recording customer and supplier details. The software was easily downloaded and appears to have had the installation code hacked so that it could be used. Hao has not told anyone at the company about this software despite the fact that he has been using it to reduce his workload for the past three months.

To prevent inappropriate downloads of software to the network, the IT department must

A. survey the software installed on Hao's work computers.

B. survey the software installed on all computers on the company's information system.

C. limit the network access rights of all workers to only those required to perform their roles, and survey the software installed on all computers on the company's information system.

D. limit Hao's network access rights to only those required to perform his predetermined role, and survey the software installed on all computers on the company's information system.

END OF SECTION A
TURN OVER

SECTION B – Short-answer questions

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

Question 1 (2 marks)

Myles has just started working in the ICT department at a small private primary school. He has discovered that he has access to all the parents' contact numbers. Myles also plays soccer at the local soccer club and the club is looking at ways to raise money for new change rooms. Myles thinks that it would be a good idea to download all the parents' contact details and give them to the treasurer of the soccer club, so that they can ask the parents to donate money to the club.

Explain an ethical reason why Myles should not use the primary school's contact list.

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Question 2 (2 marks)

A client contacts you asking for help with a particular issue.

Identify two ways that checking previous logs would assist in solving the client's issue.

1. _____

_____

2. _____

_____

Question 3 (3 marks)

Remona, a computer technician, has just assessed a client's computer network and found a fault that is reducing the performance of the system.

a. List two steps that should occur after determining that a fault in the network has occurred.   2 marks

Step 1 _____

_____

Step 2 _____

_____

b. After she repairs the fault, describe one step that Remona should undertake.   1 mark

_____

_____

Question 4 (5 marks)

a. When obtaining client feedback, list two appropriate techniques that an organisation can use.   2 marks

Technique 1 _____

_____

Technique 2 _____

_____

b. Once you have obtained the feedback, you are required to review what clients have said and identify areas for improvement.

List three areas of possible improvement for the organisation that may arise from the client feedback.   3 marks

Area 1 _____

Area 2 _____

Area 3 _____

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Question 5 (2 marks)

A new client has asked why a firewall needs to be added to their network.

Explain the purpose of a firewall and state where it will be placed in the network.

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Question 6 (2 marks)

Jose visits a local office supply store, seeking advice about purchasing a new printer. The store sells ink jet printers for under $100, and network-capable laser printers for $650.

Provide Jose with advice on why the laser printer is the better option for their business.

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Question 7 (4 marks)

Riley runs an engineering business that generates $3.5 million a year. Riley wants to set up a website so that he can advertise the services that his business offers and allow clients to request quotes online. His clients will need to enter information including their name, address, phone number and email. The webpage design company has told Riley that he needs to supply them with a privacy policy that will be displayed on the website.

a.   List three items the privacy policy must include.   3 marks

Item 1 _____

_____

Item 2 _____

_____

Item 3 _____

_____

b.   Outline why Riley's business requires a privacy policy.   1 mark

_____

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Question 8 (5 marks)

A remote school is located 2500 km from the nearest city. Orders to the school usually take weeks to arrive so it is vital to plan well in advance for any maintenance issues that may arise. The school has a number of laser printers that serve the requirements of 1200 students and 134 staff members at the school.

a.   In order to maintain the ICT printing capabilities at the school, name two items the school needs to order well in advance.   2 marks

Item 1 _____

Item 2 _____

b.   Propose a system the school could introduce to maintain its ICT systems and to minimise disruptions due to lack of consumables and spare parts.   3 marks

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Question 9 (6 marks)

Parker is setting up a SOHO network for the office of his electric bike business. There will be a maximum of two people in the office at any one time. Parker has asked for recommendations as to what network components he might need and a description of the role of each component.

a. From the following list select two network components and describe the role of each component in Parker's office. **2 marks**

web server   wireless access point   router   switch

Component 1 _____

Description _____

_____

_____

Component 2 _____

Description _____

_____

_____

Parker's friend, who thinks he knows a bit about networks, has suggested that he should also install a network-attached storage (NAS).

b. Explain the purpose of a NAS and how it would enhance Parker's network. **2 marks**

_____

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_____

c. Parker would like to create a website for his business and would like to host the website on the NAS.

Explain why it would **not** be recommended to host Parker's website on the NAS. **2 marks**

_____

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_____

Question 10 (3 marks)

Jenny is the new office manager at a local pharmacy. Previously, the backup of the file server occurred only once a week, on Sunday night, and was then stored on the file server. Jenny has suggested that backups be made daily and stored in different folders: both on the file server and in the cloud.

a. State a possible consequence of an ineffective backup process. 1 mark

_____

_____

_____

b. Explain how a major failure in the file server, causing loss of data, could be fixed using the new backup procedure suggested by Jenny. 2 marks

_____

_____

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Question 11 (4 marks)

Pedro is a talented programmer who can create computer programs using a number of different languages. He recently started creating a game he hopes to release for commercial purposes.

a. How are Pedro's computer games protected in relation to the *Copyright Act 1968*? 2 marks

_____

_____

_____

b. State the **two** possible penalties that are applicable to anyone pirating Pedro's game. 2 marks

_____

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Question 12 (3 marks)

Chad, a network technician at a local primary school, has been asked to investigate why teachers cannot print to a printer that has been moved to a different building of the school. Chad finds that the IP address of the printer is 192.168.1.27 and the IP address of the computer Chad is testing from is 10.1.1.105.

Explain why these devices cannot communicate with each other and what needs to change on the printer in order for users to be able to print.

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Question 13 (5 marks)

A growing financial company with nine accountants is investigating accounting software. You have been tasked with looking at the licence types and fees involved with each of the licences.

- Software A uses concurrent licensing with an overall fee of $5400 and shared login details for all staff. This allows staff to float between devices and to work from the office or remotely.
- Software B uses a device licence. This would cost $400 for each device that uses the software. For the financial company this would include one shared administrative desktop device in the office, nine staff laptops for the accountants' individual use, and two machines for IT support staff. The shared office desktop would share login details for the software.
- Software C uses a network licence. This would cost $6000 regardless of the number of devices that use the network. The access control would be set up by the IT support staff.
- Software D is an open-source licence. This allows an end user to freely share, modify, distribute, commercialise or relicense the software with no restrictions. No technical support, updates or security are included.

a. Based on the above information, identify the software with the lowest cost.   1 mark

_____

_____

b. Consider the different security implications of choosing each of the software types listed above.

Explain to the business manager which of the options would be safest for the company.   2 marks

_____

_____

_____

_____

c. Software asset management (SAM) is a key system that allows an organisation to maintain oversight of its software usage and to centralise control of its software licences. There are three key benefits associated with this: enhancing oversight and minimising waste, optimising ICT budgets and reducing risk associated with licence compliance.

Based on the SAM principles, explain to the business manager which software from the list above should be purchased.   2 marks

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Question 14 (7 marks)

When providing a client with advice on software and hardware, one step that you are required to complete is to investigate and document a solution. One way to do this is to identify the client's requirements.

a. What are three things that you should ask when questioning the client? 3 marks

1. _____

_____

2. _____

_____

3. _____

_____

Once you have completed your investigation, you will need to document what you have found.

b. List and describe two techniques you could use to document the investigation. 4 marks

Technique 1 _____

_____

Description _____

_____

_____

_____

Technique 2 _____

_____

Description _____

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Question 15 (9 marks)

A university computer science laboratory is interested in becoming more carbon-neutral. It collects data about the temperature of the room and the coding output of students during the day. To collect the data, the university installed heat sensors above the computer desks to measure the room temperature. The computers automatically collect the coding output of individual students when the classroom is at different temperatures.

Coding efficiency at different room temperatures
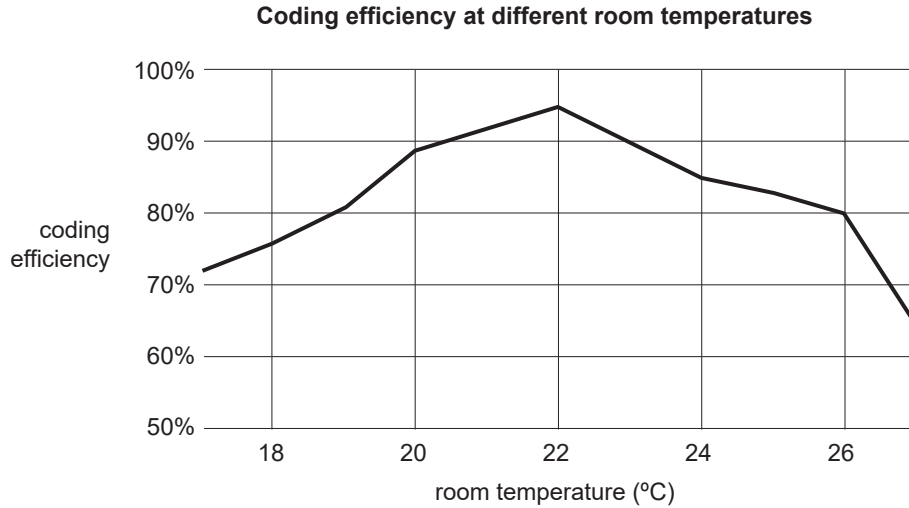
a. The university considers a coding efficiency of 90% or above to be optimal.

Using the graph above, describe the optimal temperature range of the computer science laboratory. 2 marks

_____

_____

_____

b. The university did not tell students that it was going to collect this data.

Explain two privacy principles that the university has breached in undertaking the data collection. 2 marks

Principle 1 _____

_____

_____

Principle 2 _____

_____

_____

c. The university does not yet have a privacy policy.

Outline the three steps the university must undertake to ensure that all data has been collected consensually from the computer science students.   3 marks

Step 1 _____

_____

Step 2 _____

_____

Step 3 _____

_____

d. The computer that was storing the individual data from students was accessed by an unknown individual and potentially hacked.

Complete the table below by numbering each step in the order in which the steps should be completed when a data breach occurs. Use the numbers 1 to 4, with 1 being the first step.   2 marks

Step	Number
notify	
assess	
take remedial action	
review	

Question 16 (8 marks)

Lucy has been tasked with redeveloping a wireless SOHO network for a busy cafe in a country town.

a. State two questions Lucy needs to ask during her initial meeting with the cafe manager in order to clarify the requirements of the business. 2 marks

Question 1 _____

_____

Question 2 _____

_____

The cafe has three point of sale (POS) machines, two networked TVs that can play nature documentaries from a streaming service, four smart fridges, three smart freezers, one desktop computer for the manager, a printer, streamed music playing on the speakers and free wi-fi for the patrons. The cafe also uses a backup service to the cloud at the end of the day.

On the busiest days, the cafe appliances use the following bandwidths.

Appliance	Bandwidth (Mbps)
each TV	2.4
music	0.2
smart appliances	0.1
guest wi-fi	10
each POS machine	1

Speed at 100 m for different transmission types
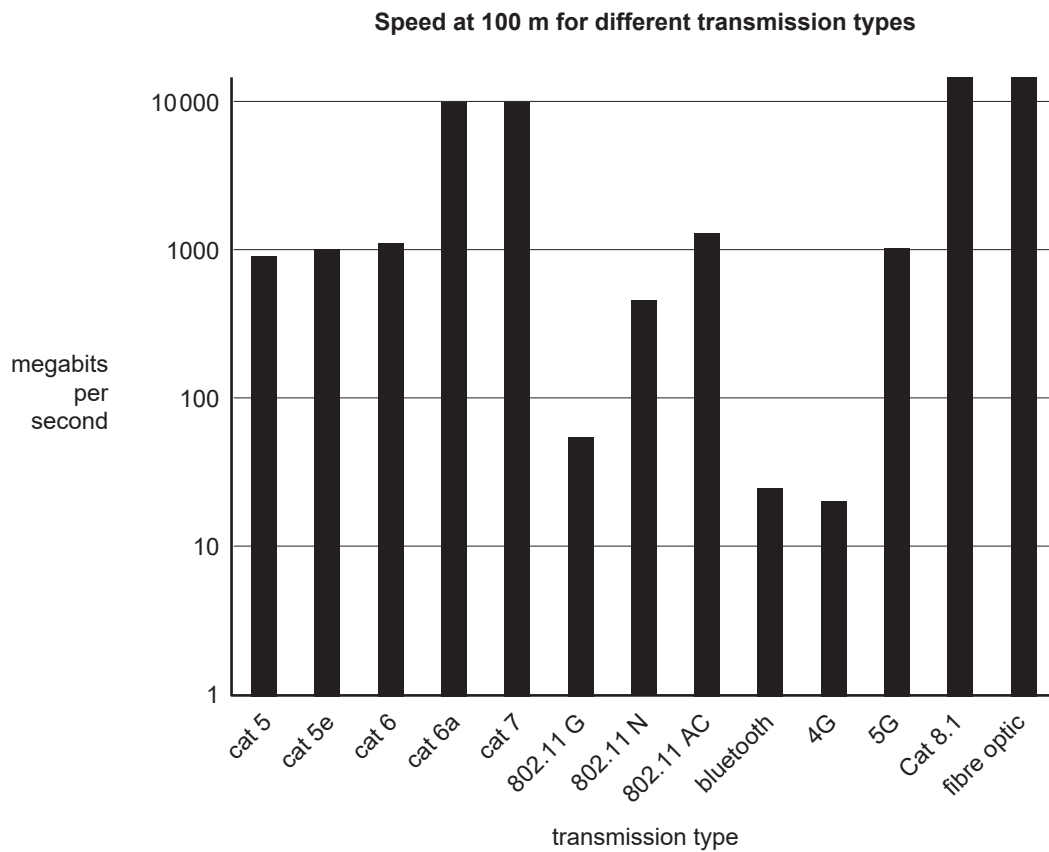
The graph above shows the speed of the internet at 100 m from the modem. Cost for each category increases from left to right.

b.   Considering the data usage above, justify the one type of network transmission that Lucy should suggest the cafe's SOHO network should include. In your answer, refer to speed, security and cost.   3 marks

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After Lucy has gained approval for her network design and set it up, she is ready to test it. She completes the following tests in the following order.

1. ping test
2. printer test page
3. speed test the internet
4. access the NAS

c. Describe the problem with Lucy's network test plan.   2 marks

d. After she sets up the network, and before patrons are allowed to access the public wi-fi, what is the last step that Lucy needs to undertake to ensure that the network is safe from external threats?   1 mark

END OF QUESTION AND ANSWER BOOK