



2006 VCE VET Information Technology GA 2: Written examination

GENERAL COMMENTS

A total of 802 students sat the VCE VET Information Technology examinations in 2006. The number of students sitting for each of the three qualifications was: Software Applications – 447 students, General – 271 students and Network Administration – 84 students.

In general, students coped well with the format of the paper and attempted most questions. Students who did not understand a scenario or misinterpreted a question were still able to access questions on the rest of the paper. Students who repeated answers where the question asked for more than one response were not awarded full marks.

Questions that required an explanation proved challenging for many students, and responses often lacked sufficient detail or were not related to the situation presented in the question. Students need to be reminded to read the information given in the stem of the question and refer appropriately to this context in their answer.

Most students handled questions from each unit of competence reasonably well. In general, questions based on ‘User and Technical Documentation’ and ‘Migrate to New Technology’ were well answered. However, some improvement is needed in responses to ‘Provide Advice to Clients’ and ‘Macros and Templates’, where students were asked to suggest solutions to client problems.

This Assessment Report provides general information on students’ performance in Sections A and B, which were common to all three examinations. Separate information is provided on each of the three case studies in Section C.

SPECIFIC INFORMATION

Section A – Multiple-choice questions

The table below indicates the percentage of students who chose each option. The correct answer is indicated by shading.

Question	% A	% B	% C	% D	Comments
1	0	90	0	9	
2	98	1	0	1	
3	8	1	15	76	
4	30	13	30	28	Students were expected to identify the importance of minimising disruption in the workplace. Alternative D would cause the least disruption to staff doing their work.
5	87	1	5	8	
6	6	13	48	32	
7	60	5	11	25	
8	2	1	2	95	
9	2	1	96	2	
10	47	25	18	9	
11	3	37	3	57	
12	7	61	14	18	
13	2	1	91	7	
14	12	7	17	64	
15	0	78	18	4	
16	3	32	62	3	Students needed to prioritise Help Desk calls. Printing the brochures was the most urgent task as they had to be in the post within the hour, followed by setting up the data projector (which would be quickly achieved), and finally assisting with the spreadsheet for tomorrow’s report.
17	32	60	5	4	
18	7	8	6	79	
19	7	7	84	2	
20	5	73	6	16	



Section B – Short-answer questions

For each question, an outline answer (or answers) is provided. In some cases the answer given is not the only answer that could have been awarded marks. Specific comments on student performance are provided where relevant.

Question 1

Marks	0	1	2	Average
%	11	47	42	1.3

1a.

Any of:

- take a portable keyboard as well, either standard, foldable or optical
- use an ergonomic keyboard
- use speech recognition software instead.

1b.

Any of:

- potential for repetitive strain injury (or a similar reference to the risk of causing wrist strain)
- allows for better posture (or another similar, reasonable OH&S related answer)
- ergonomically designed to prevent injury.

Some students demonstrated little knowledge of OH&S injuries such as repetitive strain injury (RSI) and occupational overuse syndrome (OOS).

Question 2

Marks	0	1	2	Average
%	7	43	51	1.4

Students were awarded one mark for describing a positive, professional approach to responding to the client. For example, 'Respond to the client in a calm manner'. The second mark was awarded for describing what to do to resolve the problem. For example, 'Give him instructions for fixing the problem over the telephone' or 'Escalate the problem to someone who can fix the problem'.

Some students suggested to calm the client, but then forgot to suggest how to fix the printer problem. Other students suggested how to fix the problem, but forgot to mention how they would deal with the client. It is important that students read the question stem carefully and address all elements in order to obtain full marks.

Question 3

Marks	0	1	2	Average
%	5	29	66	1.6

3a.

Either of:

- to check that the manual meets their requirements
- to confirm that the manual has been received.

3b.

It is confusing for the user to understand. Alternatively, students could have suggested ways to improve it, such as use dot points.

Question 4

Marks	0	1	2	Average
%	7	7	87	1.8

The best answers are in order below:

- amount of system RAM
- available hard disk drive space
- CD/DVD drive.

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Question 5

Marks	0	1	2	Average
%	25	21	54	1.3

5a.

Either of:

- the users' computers are still trying to send print jobs to the old server
- the workstations were not updated or upgraded.

5b.

One mark was awarded for a reasonable suggestion with reference to part a., such as, 'Remove the old printer connection information and enter the new printer connection information on workstations'.

Some students suggested a reason for the users not being able to print, but were not able to give a plausible explanation. Students should check that all parts of a question have been answered.

Question 6

Marks	0	1	2	Average
%	45	11	44	1.0

A software problem, because:

- an out of range error is usually software related
- the error refers to an error in the code at line #1654.

Many students recognised the error as software and gave an appropriate explanation. Others incorrectly thought that it was a hardware error and referred to problems with wireless network connectivity.

Question 7

Marks	0	1	2	3	Average
%	1	13	29	57	2.4

7a.

Any of:

- Internet
- magazines
- newspapers
- brochures
- trade shows
- vendor advertising
- computer shop
- colleagues working in the computer industry

7b.

Features of benefit to the vet could include:

- storage capacity would allow him to conveniently store a lot more data about clients and their animals
- Internet connectivity – email or Internet access would allow him to consult expert systems on the web or email his colleagues.
- lower resolution camera – files would take up less storage space and yet be adequate for images of cattle for his database
- GPS capability to find farms
- phone and/or phone car kit to contact clients (these have similar uses and therefore counted as one feature)
- bluetooth simplifies connection to the computer for mobile computing.

One mark was available for each feature selected and its associated explanation. As the features were listed, students were expected to show their understanding by explaining how the feature chosen would assist David in his work.

Part a. of this question was generally very well answered. Most students could give two valid features for part b., but some students gave either no reasons or poor reasons to justify why the client would select device B, with no reference to how the feature could help the vet in his work. Discussions of device A features were not acceptable.

Question 8

Marks	0	1	2	3	4	5	Average
%	3	5	17	37	19	20	3.2

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8a.

Give the problem to a more experienced person; for example, a level 2 or 3 person or an expert (can be external).

8b.

Students needed to provide two different ways of getting feedback, for example:

- send the client an evaluation survey or feedback sheet in the mail
- help desk logs – check for recorded problems.

8c.

Benchmarking is performance measured against key performance indicators (industry based), having defined service levels and comparing to actual service levels. It is important because it can decrease costs, increase response times and increase customer satisfaction.

One mark was available for ‘what is benchmarking?’ and the second mark for ‘why it is important?’

Most students answered parts a. and b. very well, but many students were unable to explain benchmarking and its importance.

Question 9

Marks	0	1	2	3	4	Average
%	13	11	25	39	13	2.3

Criteria for software selection	Reason for inclusion in list
1. Operating system requirements	<ul style="list-style-type: none"> • Does it match what the company currently uses? • Is it compatible with the current system?
2. Training available	<ul style="list-style-type: none"> • Is it readily available? • Quality of training? • Is there documentation available – user manual, etc? • Training style – online, group, one-on-one, when, where? • Is there training involved? • How much training involved?
3. Support provisions	<ul style="list-style-type: none"> • What level of support will be provided? • What form of support – web, phone? • Response time – to assist the change over, deal with problems?
4. User or special interest groups	<ul style="list-style-type: none"> • How much support is available through other avenues (for example, online, colleagues, magazines, forums and mailing lists) so staff can benefit from other users’ ideas? • Another source of trained staff? • How well thought of is the package generally by current users?

The responses were expected to be in the form of a question as they were criteria for evaluating software for purchase. Answers that merely rephrased the question stem were not awarded marks. One mark was given for each of four reasons

While many students gave appropriate responses for some or all of the first three criteria, few students could explain the reason for including user or special interest groups. The user group response appeared to be more of a challenge for many students. A number of students misinterpreted the question and digressed, demonstrating a poor understanding of evaluation criteria.

Question 10

Marks	0	1	2	3	4	Average
%	2	1	10	10	76	3.6

Possible answers included the following.

- Video card – needs to be fast card for 3D graphics (3D card has GPU for faster 3D processing and enough VRAM), reduces memory usage and removes some hard disk activity.

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- Internet connection – from dial-up to broadband as a faster connection is needed for game data to be sent to/from each computer that is playing the game, improves multi-user response times.
- Hard disk – use a faster SATA drive 10 000 rpm to access data quickly and include a HDD cache.
- Increase RAM – to 1GB for less hard disk activity.

One mark was available for each of two upgrade items, and one mark for each of two reasons.

Responses to this question were generally very good to excellent. Most students appeared to enjoy answering the question and were, in most cases, able to give appropriate reasons for each upgrade. Some students even suggested specific brands and model numbers for the upgrades, which was not required to achieve full marks.

Question 11

Marks	0	1	2	3	Average
%	2	9	21	68	2.6

11a.

It makes it harder for people to use/access an unattended computer, as machines left on could be accessed by unauthorised users.

11b.

Five minutes is too short. They may have to unlock it even if they don't leave the desk, for example if they're on a long phone call. It could be annoying for the users.

11c.

Change it to 10 or 15 minutes or set up proximity detector screen locks.

Removing the password requirement was **not** acceptable as the stem indicated that passwords are company policy.

Most students appeared to understand the concepts involved in this question, providing a range of acceptable, and often inventive, answers.

Question 12

Marks	0	1	2	Average
%	36	35	29	0.9

Possible answers included:

- needs to burn at a slower speed
- needs to install the buffer underrun protection software
- latest drivers needed
- larger cache needed for burner
- needs to clear more space on hard drive for software
- ensure operating system has latest updates patches
- underrun error is caused by having no data ready for DVD to accept.

One mark was awarded for the reason and one mark for the explanation. Most students found this question challenging. Many offered answers that just restated the question and gave insufficient or no explanation. Hardware issues appeared to be poorly understood by many students in this and other questions.

Question 13

Marks	0	1	2	Average
%	14	43	43	1.3

13a.

Any of:

- '.doc.doc' multiple extensions are an indicator for some viruses
- they may block all attachments
- the system may not accept the '.doc.doc' extension.

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13b.

Any of:

- use a compression utility such as Winzip, StuffIT or RAR to reduce the attachment file size
- use the PackNGo feature of PowerPoint to reduce the attachment file size
- break the presentation up into smaller files and send separately.

Most students answered this question reasonably well, although some missed the double extension being an indicator of a virus in part a.

Question 14

Marks	0	1	2	3	Average
%	16	34	34	17	1.5

14a.

It creates continuous files out of all the fragmented files on the hard disk.

This question appeared to challenge many students, with few being able to accurately explain what DEFRAG does. 'Saves space' was not an acceptable answer.

14b.

Two situations needed to be described. For example:

- if the system is sluggish/slow, as it will speed up file/data access
- if there is heavy use of a computer; for example, frequently creating and deleting files. This would leave gaps on the hard drive.

After removing a single or a small number of files it would not be necessary, so this was not an acceptable answer (for example, after removing a single virus file).

Part b. was reasonably well answered by most students, although some students incorrectly thought that DEFRAG creates more space on the hard drive and cleans off surface scratches.

Question 15

Marks	0	1	2	3	4	Average
%	7	12	22	34	25	2.5

15a.

Check that all data has been converted correctly.

15b.

It's easier for users to understand the system if it is picture based.

15c.

User resistance overcome by:

- user training
- explaining the benefits of the new system
- incentives.

15d.

At a non-peak period (for example, at night, on a holiday or holiday period, or over the weekend)

Most students answered this question well, particularly parts a., b. and c. A few students were unable to give an appropriate time to install the new system for part d., making suggestions such as 'at the end of the financial year' when many companies would actually be very busy, making it a poor time to install the new system.

Question 16

Marks	0	1	2	3	4	5	6	Average
%	22	27	22	13	11	5	0	1.8

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16a.

5. Barcode on CD
1. Scan CD barcode into computer
 4. Music sales file
 3. Print an invoice for the customer
 2. Customer invoice

Some students were not able to put the flowchart steps in the correct order and often wrote the step descriptions in the boxes provided, instead of the number for each step as instructed. Students were not penalised for this, but it was an unnecessary use of their time in the exam.

16b.

Any two of:

- ISBN or identity code or ID
- manufacturer's code
- country code
- check digit.

Price/cost was not acceptable as a barcode is an identifier and this information would be looked up in the current database.

Few students demonstrated that they understood the difference between a product identifier (barcode) and the data that is accessed from a typical products database. The information held in the database (on products such as CDs) needs to be able to be easily updated on a day to day basis. The barcode is simply an identifier used to conveniently access this information at the cash register.

16c.

Some examples of acceptable answers are given below.

Data element	Length	Type	Data store (database)
CD title	30 characters length	text, varchar or string data type	Music sales file
Artist	20 characters length	text or string data type	Music sales file
Barcode number	15 characters length	number, text or string data type	Music sales file
Cost of CD	automatic length (or suitable length)	Currency, other numeric data type (single, double, integer etc) or numeric	Music sales file

One mark (up to a total of two) was available for each row filled in with a reasonable Data element, Length and Type.

Responses to part c. were very poor, with a number of students leaving it blank. A few students were able to demonstrate their understanding well and gave some very good responses. Some students showed a poor knowledge of data storage and gave inappropriate answers such as a track or album title, its genre (rock, pop, etc) and its playing time.

Question 17

Marks	0	1	2	Average
%	22	44	34	1.1

17a.

Either of:

- contravenes the Privacy Act
- inappropriate use of private information.

Some students skirted around the answer and did not mention that it was a breach of personal privacy or that it would contravene the Privacy Act.

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17b.

Either of:

- using BCC (blind CC) in bulk emails
- sending the confidential one separately

Answers that just reworded the question stem were not acceptable.

Some answers were the equivalent of 'don't do it again', which did not address the issue adequately. Also, simply removing the email address from the address book was not an appropriate answer and seemed to miss the point. Some students answered part b. well, indicating a good understanding of the issues involved.

Section C – Case Study: Software applications

Question 1

Marks	0	1	Average
%	9	91	0.9

Any one of:

- consistent in
 - style
 - font
 - logo
 - business details
 - customer details
- look more professional

This question was generally very well answered.

Question 2

Marks	0	1	2	Average
%	10	31	59	1.5

2a.

Finding out details of what is required for macros and templates.

2b.

Either of:

- need to get feedback from the client
- to make sure that you have understood the problem and designed it appropriately.

This question was generally well answered; however, some students merely reworded the stem of the question instead of giving an appropriate response.

Question 3

Marks	0	1	2	Average
%	42	34	24	0.8

Any two of:

- to input required report fields (dates from/to, etc)
- to automate scheduled printing (for example, end of month reports)
- to retrieve information based on a criteria
- to collate statistics and/or create graphs.

One mark was awarded for each of two macros that would help Simone print out her management reports more efficiently. These needed to be relevant to the question stem.

Some students appeared not to read the case study carefully and neglected to relate the macros described to Simone's work, specifically with printing management reports. Answers such as 'print' or 'print preview' were not acceptable, as buttons for these already exist on the default toolbars. Other students' responses were good and showed a sound understanding of macros.

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Question 4

Marks	0	1	2	Average
%	14	15	71	1.6

Mail merge

Advantages

- tickets are checked prior to sending
- good quality tickets
- can't duplicate tickets

Disadvantages

- tickets may be lost in mail
- still time consuming

Emailing

Advantages

- tickets are sent instantly
- save on postage

Disadvantages

- customer needs a printer

This question was well answered by most students.

Question 5

Marks	0	1	2	3	4	Average
%	11	10	18	30	32	2.6

5a.

Images of the invoice were expected to contain at least three of the following items, or similar, to be awarded marks:

- invoice number
- customer address/phone
- company name/address/phone (that is, BookTix's details)
- ticket quantity and price
- event tickets are for
- GST included in price (as tax invoice)
- subtotal and total price
- date.

5b.

Save it as a global template or as a template in a directory that is accessible to those who need it.

5c.

So that the location is documented in case of future changes by another person or to help new staff as the company expands.

Customer Service reasons were not acceptable; for example, a customer enquiry to find the date of an invoice would not be handled by the IT support staff.

Parts a. and c. of this question were answered well by most students. A number of students found part b. more difficult. Some indicated that the invoice file should be put on the network, but did not mention that it should be a template or that it should only be available to those with permission to use it.

Question 6

Marks	0	1	2	3	4	Average
%	34	31	20	12	4	1.2

6a.

Either of:

- provide training on how to use the spreadsheet
- redesign the spreadsheet so data entry is automatic where possible.

'Template' was not a suitable answer as the spreadsheet already exists – shortcuts, ways of automating the spreadsheet or documentation were required for this question.

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6b.

4. If payrate = time_and_half then

5. employee_pay = employee_pay + payrate * time_and_half_hours_worked * 1.5

6. end if

Row 4 could also have been:

If payrate = True then

as 'payrate' could be taken as a Boolean Flag.

One mark was awarded if lines 4 and 6 were correct, and the second mark for line 5.

6c.

Either of:

- the security level is set too high
- a digitally signed Trusted Certificate is not attached to the macro.

Responses to Question 6 varied widely. In part a. some students' responses indicated a poor understanding of spreadsheets and how they can be automated. Many students did not attempt part b. but those who did generally handled it well. Responses varied for part c. as well.

Question 7

Marks	0	1	2	3	4	5	Average
%	12	10	15	21	25	17	2.9

7a.

Any of:

- name of event
- email address
- date of event
- credit card details
- number of tickets required.

Part a. was very well answered by most students.

7b.

One mark was awarded for a suitable site navigation system (for example, buttons, menus, hyperlinks), and the second mark for some depiction of security (for example, https, padlock, ssl, certificates, security statement).

Part b. seemed to present a challenge for many students as they neglected to include a method of navigation or an indication that the site was secure.

7c.

Either of:

- use a template
- use a cascading style sheet (css).

Alternatively, students could have described a suitable template.

Most students gave an appropriate response for part c., but a few students seemed to be confused and did not suggest using either a template, a cascading style sheet or a theme, all of which are commonly used in website development.

7d.

Online, phone or email support.

Part d. was generally well answered by most students.

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Section C – Case Study: General

Question 1

Marks	0	1	Average
%	11	89	0.9

Acceptable answers included:

- harder to crack
- to prevent unauthorised access by previous personnel, etc.
- to stop access by the previous contractors
- the old one is insecure and easily guessed.

This question was generally very well answered.

Question 2

Marks	0	1	2	Average
%	23	68	9	0.9

Students needed to design an email template which had a logo, company name, company address, company slogan, contact details, general email address and disclaimer.

A number of students responded to this question as if the design was for a printed document instead of an electronic one. Some students merely redesigned the logo, which was not required, and missed the point of the question. Other students just reproduced the information included in the stem of the question and neglected to redesign it as an electronic email template.

Question 3

Marks	0	1	2	Average
%	60	16	24	0.7

Create a macro to:

- open the csv file
- read the data into variables or select required data
- place the data into the database records
- put the correct data in the correct fields of the database.

This question was generally poorly answered. Some students gave some very good responses but many others did not appear to understand the data transfer process.

Question 4

Marks	0	1	2	Average
%	23	46	31	1.1

4a.

Any of:

- Kelly may go on leave, be sick, retire, quit, etc.
- disaster recovery planning
- reduce work load for Kelly.

4b.

Either of:

- onsite group training
- group training.

Onsite training because the macro resides on their workplace system, and group training as more than one person needs the training. Onsite by itself was not accepted. One-on-one training was not acceptable as more than one person needs training.

This question was reasonably well answered.

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Question 5

Marks	0	1	2	3	4	Average
%	20	12	21	28	20	2.2

5a.

Acceptable comments included:

- necessary for keeping backups of company data, but stricter procedures need to be followed
- if one tape is damaged no spares are available with their current procedure – they should use more than one tape in case of damage.

5b.

Acceptable comments included:

- the tape needs to be stored offsite in case of disasters such as a fire
- risk of dust, etc. in the bag
- should be stored in a safe located in a non-staff area.

This part, regarding storage of backup tapes, was poorly answered.

5c.

An example of an acceptable response was, ‘The radio signal from the mobile phone is electromagnetic and corrupts the magnetic data on the tape.’

One mark was awarded for a suitable cause, and one mark for the explanation.

Question 6

Marks	0	1	2	3	4	Average
%	31	24	21	17	6	1.4

6a.

The data in the No 1 backup was deleted before it could be copied to the No 2 backup.

6b.

The best procedure would be in the order 3, 4, 1, 2.

6c.

Any of:

- to allow the user put in a correct answer after making a mistake
- to re-ask the question if the answer is not valid
- to ensure only valid input is accepted.

6d.

Either of:

- comments or internal documentation that should have been included in appropriate places
- notes inserted in the code listing that explain what the code does.

This question appeared to challenge many students, who found it difficult to interpret the logic of the pseudocode. Other students answered this question very well.

Question 7

Marks	0	1	2	3	4	5	Average
%	36	30	14	12	5	3	1.3

7a.

Disconnect or switch off the server to prevent damage from unauthorised access or to stop problems.

One mark was awarded for describing what to do to prevent further access by hackers or to prevent the public accessing the ‘damaged’ site, and the second mark for the explanation

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7b.

Any of:

- to totally remove any and all changes made by the hacker to the system
- it is faster to rebuild the server than to repair it
- it is less dangerous to rebuild the server than to repair it
- to remove any Trojans or viruses.

7c.

For example:

Strategy

- rebuild from original files or restore a known, reliable backup of the data

Explanation

- it is easier (and safer) to rebuild than to repair a hacked system

Discussion of this topic in classes would benefit many students. Part c. in particular caused problems, as many students gave strategies or techniques related to future prevention rather than current repair. One mark was awarded for a suitable strategy and the second mark for the explanation.

Section C – Case Study: Network Administration

Question 1

Marks	0	1	Average
%	13	87	0.9

Any of:

- increased speed
- no external EMF or RF interference
- less signal loss over distance.

This question was generally well answered.

Question 2

Marks	0	1	2	Average
%	5	20	75	1.7

Any of:

- no electromagnetic radiation – no danger to humans
- lighter – easier to carry/move (reduces back problems)
- less user eye strain due to less radiation.

One mark was awarded for the reason and one mark for the explanation. This question was generally well answered by students.

Question 3

Marks	0	1	2	Average
%	30	26	44	1.2

Either of:

- monitoring software tracks software usage and limits the number of users accessing the software concurrently – explain the licence agreement to the user
- too many users trying to run the software at the same time – wait a while and then try accessing the software again.

One mark was awarded for the response to the user and one mark for the explanation. A number of students appeared to have a poor understanding of concurrent licences.

Question 4

Marks	0	1	2	Average
%	33	34	33	1.0

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4a.

Acceptable answers included:

- an IP address is automatically supplied to the device by a DHCP server or other DHCP capable device that can act as a DHCP server (router). May vary from one login to another
- you do not have to manually configure IP addresses. The address is supplied to the device and configured automatically.

4b.

Acceptable answers included:

- to convert URLs, Internet links and email addresses as understood by users to a format understood by the network (Internet), that is, IP addresses
- www.name.com may be translated by the DNS to 109.24.23.1
- John.Smart@home.com.au may be translated by the DNS to 201.27.66.45
- to link a logical domain name to a physical location.

Question 5

Marks	0	1	2	3	4	Average
%	7	15	33	30	16	2.3

5a.

Any of:

- telephone
- power
- water/gas (utilities)
- paper-based systems
- network infrastructure (for example, Internet links, switches, router, broadband connection, etc. Layer 1 to Layer 3 – not the server).

5b.

Any of:

- to test the backup's functionality when restored (that it works)
- to confirm that data is not corrupt or lost
- to ensure that staff know how to do a data restore
- to test how long the process takes.

5c.

Any two of:

- mixture of upper and lower case
- mixture of alpha and numeric
- no less than eight characters in the password
- can include special characters.

Parts a. and b., regarding disaster recovery and restoring data, were poorly answered by a number of students. Part c. was generally well answered, indicating a good understanding of passwords.

Question 6

Marks	0	1	2	3	4	Average
%	15	27	25	20	13	1.9

6a.

Likely causes included any of:

- faulty router port – router to switch
- faulty switch port – switch to router
- faulty cable or connection – from router to switch
- cable disconnected – from router to switch
- switch switched off
- fault in fibre optic switch in Building 3.

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6b.

Acceptable answers included:

- it is a contract between your organisation and the supplier which guarantees an agreed level of service in the event of a problem
- it will reduce the amount of downtime in the event of a failure, as the supplier has immediate access to replacement parts
- it will guarantee turnaround time (the time the problem occurs until the time it is repaired)
- equipment is ready to be replaced in case of failure (for example, router/switch)
- guaranteed response time (from time call received to engineer on site)
- guaranteed minimum time equipment is offline before replacement or repair (server up and running within agreed timeframe).

One mark was awarded for how the SLA will help maintain the network infrastructure, and one mark for a suitable example.

6c.

Any of:

- emails – because email is so widely used, and so easily accessible, viruses are easily distributed, transferred and shared
- users downloading software from the Internet
- manually loaded files (for example, from a disk or USB stick) that are infected.

In Question 6, the nature of a Service Level Agreement appeared to be poorly understood, but most students were able to give a suitable explanation for part a.

Question 7

Marks	0	1	2	3	4	5	Average
%	12	10	19	20	30	8	2.7

7a.

Either of:

- security that is based on some part of the body for authentication. It is more difficult to replicate or forge
- biometrics may use fingerprint, retina scan, voice matching – the physical attributes of a person.

Part a. was generally well answered, indicating a good understanding of biometric security.

7b.

1 and 3 or 2 and 3 would provide the best locations for implementing a security firewall.

- 1: It is the first entry point/last exit point. The router will check traffic coming in before passing on to DMZ or traffic leaving the network coming from DMZ.
- 2: It is the entrance to the network and DMZ. The router will check traffic coming in or traffic leaving the network.
- 3: It is the entrance/exit of the DMZ. The DMZ firewall software and hardware will check traffic coming in to or leaving the network. Protects the DMZ or servers in the DMZ.

All traffic should be routed or directed to the DMZ for a security check before entering or leaving the network, whether traffic originates from the internal network or from an external network. The DMZ firewall can be better configured for security checking than just the router ports. It consists of specific firewall software and possibly hardware. The DMZ gives external users some access to the network but there is a very high level of security checking before clearance is given to access the network

Two marks were awarded for selecting locations of 1 and 3 or 1 and 2 or 2 and 3. One mark was given for an appropriate explanation (as above or similar).

7c.

One mark was awarded for ticks in the 'Modify' and 'Write' and **either** the 'Read' **or** 'Read/Execute' columns (three ticks altogether). No marks were given if any were incorrect.

Part c was not well answered, indicating a poor understanding of permissions by a number of students.