BOARD OF STUDIES
NEW SOUTH WALES

2013 HSC Information Technology Marking Guidelines

Section I

Multiple-choice Answer Key

Question	Answer
1	A
2	B
3	D
4	A
5	C
6	B
7	D
8	B
9	B
10	D
11	C
12	A
13	C
14	A
15	C

Section II

Question 16 (a)

Criteria	Marks
• Identifies appropriate immediate actions showing good understanding of the problem	2
• Identifies an appropriate action	1

Sample answer:

Look up the error code in the manual
Ask the user what he/she was doing when the error occurred

Answers could include:

- Research the error code online
- Restart the printer
- Check the printer has toner/ink and paper
- Check cable connections
- Test the printer from the user's computer
- Check print queue
- Investigates page size on user's computer
- Performs test print from printer menu

Question 16 (b)

Criteria	Marks
• Justifies additional fields that should be included to close the helpdesk request	3
• Justifies ONE additional field OR identifies relevant additional fields	2
• Identifies ONE relevant field	1

Sample answer:

Date repaired/fixed – records the time taken to resolve ticket.

Client signature/Signoff – ensures the client acknowledges the ticket is resolved.

Answers could include:

Resolution – helps track the recurrence of issues.
Cost – records the cost of resolving this ticket.
Comments – allows the technician to record any useful information about the ticket.
Completion flag/check box for an electronic signoff.

Question 16 (c)

Criteria	Marks
• Correctly explains the appropriate actions that the organisation could take	3
• Correctly explains one appropriate action the organisation could take OR • Correctly identifies the appropriate actions the organisation could take	2
• Correctly identifies one appropriate action the organisation could take	1

Sample answer:

- Don't buy any more printers of this model due to unreliability, as there may be a fault which will be costly to the organisation.
- Complete preventative maintenance, eg install fixes on remaining printers, update firmware. Firmware 'fixes' can improve performance.

Answers could include:

- Replace all printers of this model to avoid 'downtime' and costly maintenance.
- Non-genuine consumables such as generic inks or non-standard paper may cause repeated failures. Use only genuine consumables.
- Report the fault to the manufacturer, who may recall that model, or refund the cost of the printer.
- Do not repair in-house, as it may void warranty.

Question 17 (a)

Criteria	Marks
• Identifies essential qualities of a virus signature	1

Sample answer:

A unique piece of code that identifies a specific virus.

Question 17 (b)

Criteria	Marks
• Identifies TWO types of viruses and explains how each can affect a computer system	3
• Identifies TWO types of viruses, and explains how computer systems are affected by either of them	2
• Identifies one virus type OR an effect of viruses on computer systems	1

Sample answer:

- WORM – can clog the network with unwanted traffic slowing communications
- LOGIC BOMB – can destroy system files, preventing system loading correctly and not working appropriately.

Answers could include:

- Can send unwanted emails
- Can stop peripherals
- Can slow system down

Question 17 (c)

Criteria	Marks
• Correctly describes strategies that could maximise virus protection	4
• Outlines two strategies that could maximise virus protection and provides detail for one of them OR • Describes one strategy with extended detail	3
• Lists methods of virus protection	2
• Identifies a method for virus protection	1

Sample answer:

The user should install antivirus software from a reputable source to guarantee its authenticity. The definitions should be updated regularly. Antivirus software depends on current definitions to prevent new viruses from exploiting the system.

Answers could include:

- Operating system and applications should be kept up to date with latest updates / patches, to overcome compromised software vulnerabilities.
- Install anti-malware / spyware software to complement the antivirus software. This will provide an additional layer of security.
- The user should not open unrecognised or unexpected emails, as they may contain viruses.

Question 18 (a) (i)

Criteria	Marks
• Selects a risk level from the table and justifies appropriately	1

Sample answer:

Medium risk because death is a consequence but unlikely.

Answers could include:

High risk because death is a consequence and possible.

Question 18 (a) (ii)

Criteria	Marks
• Completes all appropriate documentation	4
• Completes hazard identification and most control measures OR completes all control measures	3
• Identifies hazard and control measure for ONE risk OR completes most control measures	2
• Shows basic understanding of hazard identification OR control documentation	1

Sample answer:

Date: *11/10/2013*
Location: *Workstation 3*
Hazard identified: *Overloaded powerboard.*
Appropriate control measure to eliminate risk: *Remove powerboard and install more power points.*
Appropriate control measure to minimise risk: *Provide additional powerboard on other outlet.* *Isolate powerboard.*
Other control measure: *Organisation decides to no longer purchase powerboards.*

Question 18 (b)

Criteria	Marks
• Identifies issues and provides points for and/or against using a surge-protected powerboard for a computer system	3
• Identifies issues AND elaborates on ONE issue	2
• Shows a basic understanding of a surge-protected powerboard	1

Sample answer:

A surge-protected powerboard gives protection to those devices plugged into it against power fluctuations such as lightning strikes or brownouts, potentially saving the device from damage. Surge-protected powerboards cost more than regular powerboards.

Answers could include:

- Powerboards with plenty of space and high levels of protection can be quite expensive
- Some powerboards also have 'overload protection' features
- Surge protectors can still fail at critical times
- Surge protectors deteriorate over time after a number of 'hits'
- Powerboards may not have enough space between outlets to plug in all required devices

Question 19 (a)

Criteria	Marks
• Clearly distinguishes between customisation and optimisation with examples of each	4
• Shows good understanding of both customisation and optimisation with ONE example of either	3
• Shows some understanding of customisation AND optimisation OR • Shows some understanding of customisation/optimisation AND provides an example	2
• Shows some understanding of customisation OR optimisation	1

Sample answer:

Customisation refers to the changing of settings to suit the individual user's taste. This could mean the changing of a desktop background, or adding shortcuts to the desktop of regularly used items.

Optimisation refers to improving the performance of the computer system. For example reducing the number of startup programs will make more RAM available to the user which will make their preferred applications load faster and run more smoothly.

Answers could include:

- Optimisation: Virtual memory settings can be changed to utilise memory available on the hard drive in working memory.
- Optimisation of a laptop computer could mean reducing the power demands of the system in order to prolong battery life.
- Customisation: changing the screen resolution for low-vision users.

Question 19 (b)

Criteria	Marks
• Provides appropriate reasons as to why it is necessary to update a device driver periodically	3
• Provides a reason for updating a device driver	2
• Provides basic understanding of device drivers	1

Sample answer:

- To fix software bugs in the device driver as bugs are progressively detected.
- To ensure stability and smooth running of the system as drivers may become corrupted over time.

Answers could include:

- Fixes known conflicts with other drivers when they are detected.
- To take advantage of new features provided by later versions of the drivers.

Question 19 (c)

Criteria	Marks
• Provides backup procedures including why backups are performed before AND after the installation of a new operating system • Makes clear the relationships between the backup procedures and why certain aspects are/are not required before and after the installation	4
• Provides backup procedures including why backups are performed before AND after the installation of a new operating system	3
• Provides a simple backup procedure and why backups are performed before OR after the installation of a new operating system	2
• Shows a basic understanding of a backup	1

Sample answer:

Before the new installation the user should clean up their system, taking note of which files are no longer needed. This will make the time for the backup shorter and take up less disk storage.

The user does not need to backup any applications on disk or the operating system files. Any files which the user needs in the future should be backed up.

The user could backup the whole old system as a fall back in case the new system is incompatible or fails.

After the new system is installed, a restore point should be created. This ‘clean install’ allows the user to start a backup procedure which is good practice and should comply with organisational requirements. Here the user should again decide which files do not need to be backed up, in order to save disk space and time.

Section III

Question 20

Criteria	Marks
• Addresses all components of the question • Provides a cohesive well-reasoned response that reflects a high level of organisation, judgement, synthesis, and problem solving • Demonstrates an in-depth understanding of IT functions with reference to the scenario used in the question • Consistently uses precise IT terminology to a professional standard • Communicates in the manner required by the question consistently using standard industry formats	13–15
• Addresses most components of the question • Provides a cohesive well-reasoned response showing significant organisational and problem-solving skills • Demonstrates a detailed understanding of IT functions with reference to the scenario used in the question • Uses precise IT terminology to a level acceptable in industry • Communicates in the manner required by the question using standard industry formats	10–12
• Addresses many components of the question • Provides a response displaying some organisational and problem-solving skills • Demonstrates a basic understanding of IT functions with reference to the scenario used in the question • Uses basic IT terminology • Communicates in the manner required by the question using elements of industry formats	7–9
• Addresses some components of the question • Provides a response displaying limited organisational and problem-solving skills • Demonstrates a limited understanding of IT functions with reference to the scenario used in the question • Uses some IT terminology • Communicates in the manner required by the question using few elements of industry formats	4–6
• Addresses minimal components of the question • Provides a response displaying limited organisation • Communicates in the manner required by the question using few elements of industry formats	1–3

Answers could include:

- The users' attitude to the support documentation may be a reason for the failure. They may consider it too hard to find information within the documentation or that it is too hard to find because there are not enough copies or it has no index to refer to. They may have found the documentation does not meet their needs because it is outdated. The user may be put off by the size of the docs, or that they are too lazy to look for what they need.

- Management may have a role to play in how effective the support documentation turns out to be. They may not have allowed enough time to produce quality docs, or do not want to spend more money and time on their production. Sometimes there is a lack of communication between management and technical staff who write the software.

- The writers of the documentation may not understand the software well enough to explain it to users, or fail in their design of the documents, putting 'style over substance'.

- Because the staff of 12 indicated they had not yet been trained, a group or team training would be appropriate here. Using this method would be cost effective and fast, as all staff are involved. It also provides opportunity for the staff to bring up questions and solutions relating to the work they share.

- Sometimes one-on-one or individual training is appropriate. Here staff can get the training 'just in time' or as they are ready for it. It could be used when new staff join the medical centre. This training is more costly and takes time, but could be tailored to individuals.

- Both methods of training could be delivered online, or face-to-face. Face-to-face training is considered more personal, but more costly. Online training is cheaper, but staff may feel disconnected from the process.

- The medical centre could survey the staff again to check their preferences for training. It is important that the training includes an ability for the staff to give their feedback to ensure the training is client focused.

- Software development can be more successful when users are involved in its design. The medical centre staff could have given feedback to developers with a longer timeframe in order to end up with a better final product.

Section IV

Question 21 (a)

Criteria	Marks
• Describes the hardware needed for the business to have reliable internet connectivity	3
• Identifies the hardware needed for reliable internet connectivity for the business OR • Describes ONE piece of hardware needed for reliable internet connectivity	2
• Shows a basic understanding of hardware needed for internet connectivity	1

Sample answer:

A modem and a router to enable each of the four laptops to connect to the internet.

The modem connects you to the Internet Service Provider (ISP) through a landline, cable or wirelessly. The router will share this connection to the four laptops. The router could share the connection through cables or wirelessly.

Question 21 (b)

Criteria	Marks
• Outlines the procedure, in logical sequence, for adding the printer to the four laptops	4
• Outlines most steps, in logical sequence, for successfully adding the printer OR • Outlines all steps for adding the printer BUT in illogical order	3
• Outlines some steps for adding a printer	2
• Identifies ONE step for adding a single printer	1

Sample answer:

Step 1: A compatible driver would need to be installed on each laptop. The driver may be already included in the operating system, or found on a manufacturer's CD, or on their website.

Step 2: The printer would need to be connected to the laptops, either through the router or by one of the laptops, either wirelessly or via (USB or network) cables.

Step 3: A test page should be printed from each laptop.

Step 4: In the printer setup, set the new printer as the default printer.

Question 21 (c)

Criteria	Marks
• Creates a quick reference guide that is appropriate to the task and audience • Demonstrates a comprehensive understanding of the acceptable use of the internet • Provides detailed justification of the content of the guide	8
• Creates a quick reference guide that is appropriate to the task and audience • Demonstrates a good understanding of the acceptable use of the internet • Provides good justification of the content of the guide	6–7
• Creates a quick reference guide that may be appropriate to the task and audience • Demonstrates some understanding of the acceptable use of the internet • Provides some justification of the content of the guide	4–5
• Creates a quick reference guide • Demonstrates a basic understanding of the acceptable use of the internet with limited justification	2–3
• Creates a reference guide OR • Demonstrates limited understanding of the acceptable use of the internet	1

Sample answer:

QUICK REFERENCE GUIDE
Acceptable use of the internet

- Do not use the internet for personal use ← *You are stealing time and resources from your employer*
- Do not visit/open websites with unacceptable content ← *This can lead to infection by virus*
- Visit only trusted websites ← *Untrusted websites may include phishing and scams*
- Open emails from trusted senders ← *This ensures that email is free from viruses or scams*
- Virus scan all email attachments ← *Attachments can contain malware*
- Use netiquette when sending emails ← *It is good professional practice*
- Do not open spam ← *This can lead to infection by virus*
- Report spam and unacceptable emails ← *Future emails from this site can be blocked*
- Do not send personal emails ← *Personal information can be seen by others*
- Do not download any software without permission ← *Downloaded software can introduce viruses and malware*
- Do not allow 'remember password' function ← *Other users may gain access to personal accounts and information*
- Close browser when internet is not being used ← *Protects the last user from gaining access to secure connections. Identifies the user via a log.*

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Information Technology

2013 HSC Examination Mapping Grid

Section I

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
1	1	ICAU3004B / Apply occupational health and safety procedures – 1 page 65 ICAS3234B / Care for computer hardware – 2 page 42		X		X	X	X		
2	1	ICAW2001B / Work effectively in an IT environment –1 page 78		X						
3	1	ICAU2231B / Use computer operating system – 3 page 59						X		
4	1	ICAU3004B / Apply occupational health and safety procedures – 2 page 70					X			
5	1	ICAD3218B / Create user documentation – 1 page 11	X							
6	1	ICAU3004B / Apply occupational health and safety procedures – 3 page 71			X					
7	1	ICAS3234B / Care for computer hardware – 3 page 44								X
8	1	ICAW2001B / Work effectively in an IT environment – 1 pages 78-79		X						
9	1	ICAI3020B / Install and optimise operating system software – 3.1 pages 22-23 ICAS3031B / Provide advice to clients – 1.4 page 32	X		X		X			
10	1	ICAS3031B / Provide advice to clients – 1 page 30			X					
11	1	ICAT3025B / Run standard diagnostic tests – 1 page 50			X					X
12	1	ICAI3020B / Install and optimise operating system software – 3 pages 22-23								X
13	1	ICAT3025B / Run standard diagnostic tests – 2 page 52			X	X	X			
14	1	ICAD3218B / Create user documentation– 2.3 page 16	X							
15	1	ICAI3020B / Install and optimise operating system software – 2 page 21							X	

Section II

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
16 (a)	2	ICAW2001B / Work effectively in an IT environment – 1.2 page 77-78 ICAS3234B / Care for computer hardware – 3 page 45	X	X	X					
16 (b)	3	ICAW2001B / Work effectively in an IT environment – 2 page 82 ICAS3234B / Care for computer hardware – 3 page 45	X							
16 (c)	3	ICAW2001B / Work effectively in an IT environment – 2 pages 81-82 ICAS3031B / Provide advice to clients – 1 & 2 page 30 & 33		X		X				
17 (a)	1	ICAT3025B / Run standard diagnostic tests – 2 page 50								X
17 (b)	3	ICAT3025B / Run standard diagnostic tests – 2.1 page 50-51			X					
17 (c)	4	ICAT3025B / Run standard diagnostic tests – 2 pages 50-52			X					
18 (a) (i)	1	ICAS3234B / Care for computer hardware – 1 pages 40-41 ICAU3004B / Apply occupational health and safety procedures – 1 page 68			X				X	
18 (a) (ii)	4	ICAS3234B / Care for computer hardware – 1 pages 40-41 ICAU3004B / Apply occupational health and safety procedures – 1 page 68	X					X		
18 (b)	3	ICAS3234B / Care for computer hardware – 2 page 42 ICAU3004B / Apply occupational health and safety procedures – 3 page 73					X			X
19 (a)	4	ICAU2231B / Use computer operating system – 1 page 57 ICAI3020B / Install and optimise operating system software – 3 page 25				X	X	X		X
19 (b)	3	ICAI2231B / Use computer operating system software – 4 page 60								X
19 (c)	4	ICAI3020B / Install and optimise operating system software – 4 page 24			X		X			

Section III

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
20	15	ICAD3218B / Create user documentation –1 pages 11-13 ICAS3031B / Provide advice to clients – 1 & 2 page 32 & 35	X	X	X	X	X		X	

Section IV

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)								Targeted performance bands
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology	
21 (a)	3	ICAS3234B / Care for computer hardware – 1 page 40 ICAW2001B / Work effectively in an IT environment – 2 page 81			X					X	2–4
21 (b)	4	ICAS3234B / Care for computer hardware – 1 page 40 ICAW2001B / Work effectively in an IT environment – 2 page 81			X		X			X	2–5
21 (c)	8	ICAW2001B / Work effectively in an IT environment – 1 page 81 ICAD3281B Create user documentation – 1 page 13	X		X		X	X			2–6