



**2006 Information Processing and Management GA 3: Written examination**

**GENERAL COMMENTS**

Teachers should note that the comments made in this report are based on the study design accredited for Information Technology for 2003–2006. From 2007 a new study design applies and Units 3 and 4 IT Applications replace Information Processing and Management.

Overall, students’ responses to this year’s examination were very pleasing. Most students attempted all of the multiple-choice questions and the first page of the short-answer section. The first question in Section B was designed to engage all students by asking them to select and justify appropriate responses from a given range by applying a set rule. The vast majority of students answered this question and continued on to attempt other questions throughout the paper.

The range of scenarios in Section B of the paper allowed students to demonstrate the breadth of their understanding of the key knowledge associated with the study design. Students who found a particular scenario difficult or who misinterpreted a particular question in a scenario were able to respond successfully to other questions within that scenario and to other scenarios in the paper. It was pleasing to see that when asked for a given number of responses, for example, three personal details, most students gave the correct number of responses. Students are obviously being instructed to read the questions carefully and provide the appropriate number of responses in the format provided.

The paper tested a wide range of the key knowledge and skills from the study design and it was evident in the students’ responses that teachers had covered the course content well. However, it was also clear that many students found it difficult to explain, discuss or justify their responses. This clearly distinguished the top answers from those that were less successful and was particularly evident in Questions 8 to 12.

This year, students performed better than in previous years with justifying security methods (Question 6) and backup strategies (Question 3). Teachers should continue to ensure that they spend time going through key words such as ‘explain’, ‘discuss’ and ‘justify’ with their students prior to the examination and emphasise that these words require longer responses than, for example, ‘identify’ or ‘list’. ‘Explain’ requires students to describe how something should change or the reasons for a particular change, whereas ‘justify’ requires students to write why a particular option is better than other options. For example, in Question 3 students were required to explain a better backup strategy and then justify why that option was better than the current one being used in the case study. When asked to ‘discuss’, students need to be able to highlight both the good and bad aspects of the situation described and show an understanding of the issues raised. This should be a longer, more detailed response.

Many students who did not score full marks in questions were unable to clearly demonstrate that they could **apply** their knowledge appropriately to specific scenarios. These students scored marks for identifying appropriate knowledge but were unable to make the link to the scenario described. This was particularly noticeable in responses to Questions 9 and 10 in Section B; in Question 9a, most students identified a suitable software tool but a significant proportion were unable to justify why they chose it.

Overall, this year’s paper contained questions that were accessible to all students but also included questions that allowed high achieving students to demonstrate and apply their knowledge.

**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
1	87	6	1	6
2	3	79	13	5
3	79	16	4	1
4	5	12	58	26
5	76	5	12	8
6	5	3	11	80
7	17	5	77	1
8	3	93	1	4
9	6	75	5	14
10	9	3	76	11

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Question	% A	% B	% C	% D
11	6	5	2	88
12	5	25	1	68
13	10	6	83	1
14	7	74	3	15
15	9	12	10	68
16	21	61	16	2
17	4	19	55	22
18	45	8	32	14
19	12	2	19	67
20	13	57	8	22

Students generally handled this section well, with very few not providing a response to every question. In Question 18 many students were distracted by interviewing all network users (alternatives B and C) rather than looking for the most efficient strategy. In Question 16 many students selected the incorrect response of a series connection (alternative A) which was a deliberate error for a serial connection. Project Management was again presented in a different format in Question 20 and alternative D was an effective distracter. These students did not pick up that the testing had been done prior to the validation rules being established.

## Section B – Short-answer questions

### Question 1

Marks	0	1	2	3	4	Average
%	2	1	8	2	86	3.7

The correct answers were:

- Smit – has less than five characters
- ed@uk.com – has characters that are not alphabetic (@ and .).

This question was very well handled by students. Those who did not score full marks did not explain why the item was rejected.

### Question 2

#### 2a.

Marks	0	1	2	3	Average
%	2	3	48	47	2.4

Correct responses included: title, first name, surname, street address, suburb, state, country, postcode, home phone number, mobile phone number, work phone number, fax number and email address.

This question separated personal and credit card details in the stem and students were awarded marks for any three of the personal details listed above.

#### 2b.

Marks	0	1	Average
%	37	63	0.6

Students were expected to identify a document that needed an address to mail out the order to the customer. Acceptable responses included:

- mailing label
- mailing address
- invoice or tax invoice
- receipt.

#### 2c.

Marks	0	1	2	Average
%	23	39	39	1.2

Examples of correct responses include the following.

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Key Provision	Explanation
Frogs-R-Us must inform customers how personal data collected will be used.	Frogs-R-Us could meet this requirement by having a page on its website that informs the customer how the personal details collected are used.
Frogs-R-Us must keep customer's personal details secure.	Frogs-R-Us could meet this provision by ensuring the web form is encrypted when sent over the Internet and remains encrypted until the form is processed to ensure personal and credit card details are not easily accessible.

Students were generally able to identify one of the key provisions of the legislation. Lower scoring students did not explain what Frogs-R-Us should do to comply with the legislation or wrote about how to meet a different key provision than the one identified. Students commonly referred to the provisions relating to the use of the data collected and the need to store data securely.

### Question 3

Marks	0	1	2	3	4	5	6	Average
%	9	6	15	12	25	10	23	3.6

Examples of correct responses include the following.

Explanation	Justification
<ul style="list-style-type: none"> <li>Back up after the school day is finished.</li> </ul>	<ul style="list-style-type: none"> <li>Backups are best done when network activity is at a minimum.</li> <li>Backups at 2 pm will slow the network for users.</li> <li>Some work will not be backed up, including work done after 2 pm.</li> </ul>
<ul style="list-style-type: none"> <li>Backups should be done daily.</li> </ul>	<ul style="list-style-type: none"> <li>Daily backups mean less data would be lost in case of a disaster.</li> <li>Weekly backups mean four to seven days' data changes could be lost.</li> </ul>
<ul style="list-style-type: none"> <li>Backups should be saved onto tape.</li> <li>Backups should be saved onto one portable hard drive.</li> </ul>	<ul style="list-style-type: none"> <li>Tapes provide large storage space for little cost and can be set to back up and run when the technician is not present.</li> <li>A portable hard drive provides faster access to files if required and is easy to transport and less easily damaged.</li> </ul>
<ul style="list-style-type: none"> <li>All data files should be backed up regularly.</li> <li>The unchanged files should be backed up.</li> </ul>	<ul style="list-style-type: none"> <li>All files need to be backed up regularly to ensure work that is finished can still be accessed in the event of a disaster</li> <li>The current system means any file not changed in 6–10 days is no longer backed up. This is too short a time frame (especially if a student is ill).</li> </ul>
<ul style="list-style-type: none"> <li>One back up should be stored off site and one stored on site.</li> <li>Backups should be stored in a fireproof safe.</li> </ul>	<ul style="list-style-type: none"> <li>If the technician lives some distance from the college then, under the current system, the files cannot be recovered during the day of the request unless the technician leaves the site and goes home to collect the backup. A backup on site means better access for staff and students.</li> <li>Backups should not be left at the technician's home but should be stored off-site in a secure fire proof location.</li> </ul>
<ul style="list-style-type: none"> <li>Do a complete backup once a week on a Friday evening and incremental backups every day at 4 pm.</li> </ul>	<ul style="list-style-type: none"> <li>This will provide a complete strategy to ensure that all files can be recovered with minimal loss in case of a disaster.</li> </ul>

It was pleasing to see that the majority of students understood the weaknesses of the backup strategy described in the scenario and both identified an appropriate change and provided some form of justification. Lower marks were generally caused by students providing only two changes or being unable to justify the change recommended.

### Question 4

#### 4a.

Marks	0	1	2	Average
%	11	16	72	1.6

The most common responses were:

- to inform users about the legal requirements (rules and regulations) of using or owning motor vehicles
- to educate users on the current road rules (40 km school zones).

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Most students indicated the purpose of the site and linked their response to the screen dump provided.

## 4b.

Marks	0	1	2	Average
%	16	18	66	1.5

The most common responses were:

- images – those with limited English can click on the image to take them to the required page on the site
- hyperlinks – clicking on one of the hyperlinks takes the user directly to the information they want; for example, clicking on ‘check my driver history’ shows the individual’s record with Vicroads.

There were numerous techniques shown in the screen dump that students could use in their responses. Students who did not score full marks were generally unable to explain how the technique enhanced the navigation.

## Question 5

Marks	0	1	2	Average
%	17	51	32	1.2

The correct answers were:

- A. purchase and use of a separate infrared mouse for each notebook
- F. requirement of staff to use adjustable chairs when working.

Students who did not score well on this question generally did not understand the term ergonomics and selected training options such as E and G.

## Question 6

Marks	0	1	2	3	4	5	6	Average
%	15	3	12	6	24	7	33	3.7

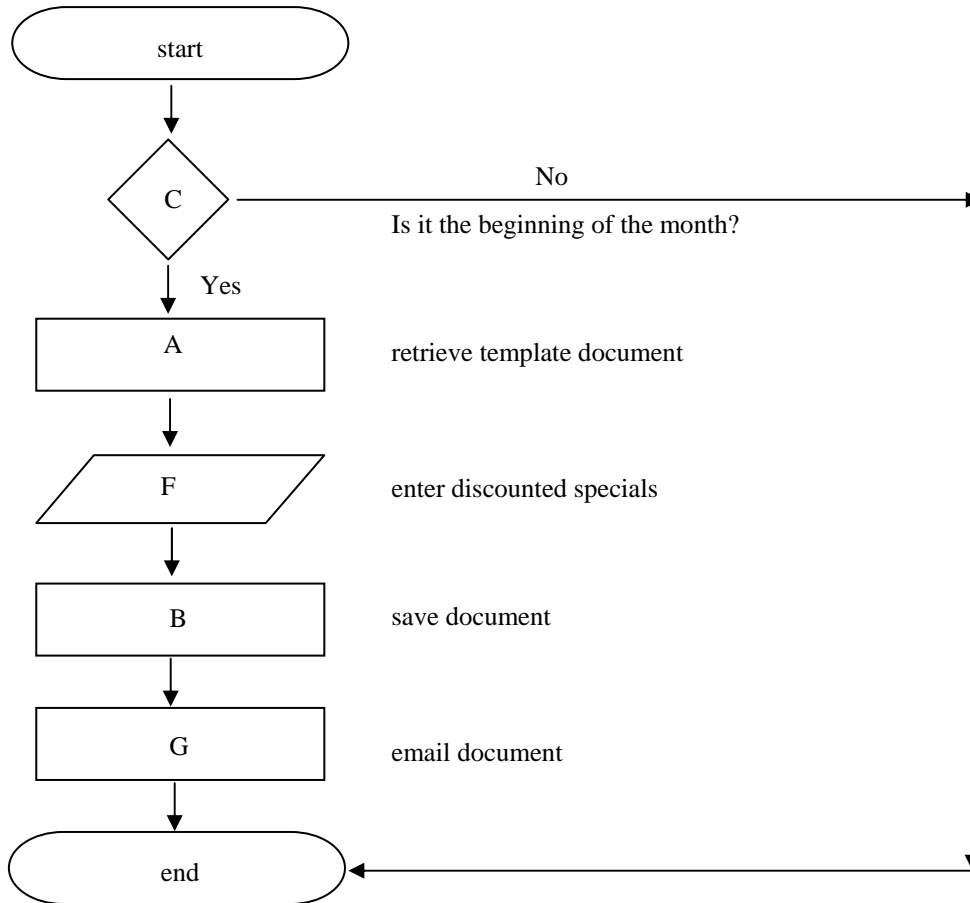
Examples of correct responses include the following.

Activity	Type of Security	Justification
Entering the secure area for umpires	<b>Physical</b> <ul style="list-style-type: none"> <li>• Locked door</li> <li>• Swipe card on door</li> </ul>	<ul style="list-style-type: none"> <li>• Fit a different lock to the rest of the stadium and give the key only to the umpires</li> <li>• Restricts entry to those issued with a swipe card</li> </ul>
Umpires using the terminal to connect to SportScore	<b>Electronic</b> <ul style="list-style-type: none"> <li>• Individual login and password</li> </ul>	<ul style="list-style-type: none"> <li>• Ensures only authorised (recognised) users (umpires) can access the web form</li> </ul>
Rhonda accessing the workstation at SportScore’s head office	<b>Biometric</b> <ul style="list-style-type: none"> <li>• Fingerprint ID</li> <li>• Iris recognition</li> <li>• Voice recognition</li> </ul>	<ul style="list-style-type: none"> <li>• Fingerprint ID is the least expensive option and is unique to the person, so only Rhonda will have access</li> <li>• Biometric security is unique to the user, so only Rhonda will have access</li> </ul>

The majority of students were able to select appropriate types of security that fitted the categories. Low-scoring students showed that they did not understand the difference between physical, electronic and biometric options.

## Question 7

Marks	0	1	2	3	4	5	6	Average
%	10	8	17	25	22	15	4	3.0



This question was challenging for students and, although most made an attempt at the question, there were some common errors. Students frequently forgot that a decision diamond needs to have two exiting pathways in answer to the question; very few students showed the ‘No’ pathway. Many students either put in an extra, incorrect task (usually ‘create a new document’) or left out a task. A number of students also assumed that all eight tasks needed to be included even though the question said to select only the appropriate tasks. Students were awarded marks for putting either the letter or the text for the task in their symbol.

**Question 8**

8a.

Marks	0	1	2	Average
%	39	47	14	<b>0.8</b>

Legislation

- *Copyright Amendment (Digital Agenda) Act 2000*

Key Provision

- You must purchase a legitimate copy of a song before you can store it on a digital medium (so that the writer/creator obtains their royalty fee).
- The copyright owner controls when and how electronic communication of the work can occur (this software package sends the music without consent).

Students found it difficult to identify the legislation but most could identify a key provision from the scenario.

8b.

Marks	0	1	2	Average
%	24	25	51	<b>1.3</b>

Examples of correct responses include the following.

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Issue	Explanation
Royalties or payment to artists	This technology means that users obtain music via the software without paying the artist.
New songs added without consent	Push Music adds songs to your player without your consent. You may not want particular songs added to your collection. It invades personal privacy.
Songs sent to others	You may have some special songs on your player that you do not want sent to other players, but Push Music will automatically send them to others.
Ownership	Push Music makes ownership problematic and people who are conscientious about ensuring they have legitimate copies could end up with illegal material.
Objectionable material	Young children/cultural groups could receive inappropriate or offensive material as Push Music copies without requiring consent.

Students could generally identify an issue but some found it difficult to explain. The explanation needed to relate to Push Music. The common themes were fees to artists, consent, personal data and objectionable material.

## Question 9

### 9a.

Marks	0	1	2	Average
%	15	32	53	1.4

The most common responses were:

- spreadsheet or Excel – it is easy to set up formulas to calculate profit and total sales for each type of barbecue
- database, FileMaker or Access – queries can be used to enter calculated fields to find the data required by the manager.

Students found this part fairly easy, although some students had difficulty justifying their choice.

### 9b.

Marks	0	1	2	Average
%	61	19	20	0.6

Software function

- sort

Description

- The sort function uses set criteria to place data in order. The manager would select the data on the Gasport models and sort the numbers in descending order (largest number first) of items sold.

Students did not handle this question as well as anticipated. A number of students could not identify a function they had used during the year. Many students simply wrote the name of a function without indicating how it could be used or how it would produce the output required. High-scoring answers invariably chose the response shown above, although there were others that could have been used, such as 'max'.

## Question 10

### 10a.

Marks	0	1	2	3	4	Average
%	36	19	30	6	9	1.3

Examples of correct responses include the following.



Technical Problem	Explanation
File format	<ul style="list-style-type: none"> <li>The variety of equipment used may mean files are in a range of graphic formats (for example, bmp, jpg, png) and may need to be converted to appropriate formats.</li> </ul>
File size or image size	<ul style="list-style-type: none"> <li>Files may be stored as high resolution, making the file size unnecessarily large.</li> <li>Large image files may make the product unnecessarily difficult to handle.</li> </ul>
Image resolution	<ul style="list-style-type: none"> <li>The variety of equipment may mean that some images are in low resolution and therefore will be difficult to manipulate and maintain the required quality.</li> <li>The resolution may mean that images pixelate when manipulated.</li> </ul>

Students found this question difficult and a number of students left it blank or only identified one problem. The technical problem needed to relate to manipulating the image, such as those given above. No marks were given to responses relating to storage or output problems that were unrelated to manipulating the image.

**10b.**

Marks	0	1	2	Average
%	18	39	43	<b>1.3</b>

Cropping

- Cropping an image causes part of the image to be cut off or hidden.
- To crop an image, click on one of the handles and move it to where you want the image to finish.

Resizing

- Resizing an image allows you to set how much space (height and width) the image is to take up on a page or screen.
- To resize an image, click on the handles and either enlarge or reduce the image while keeping it in the same proportions.

Students were generally able to identify a manipulation process although many of them were unable to explain either the process or the steps to complete the technique, either of which was accepted by the assessors.

**10c.**

Marks	0	1	2	3	4	Average
%	19	7	25	19	30	<b>2.4</b>

Instruction for image file

- Image filenames must include the area of the magazine the image is for.
- Image filenames should indicate the photo and date.

Example of image filename

- Sport\_01.jpg (or Sport01)
- ValedictoryDinnerNov2006

Instruction for text caption file

- Text caption filenames must include the name of the image file.
- Text caption files should have the word 'caption'.

Example of text caption filename

- Sport\_01\_text.txt (Sport\_01\_text)
- ValedictoryDinnerNov2006Caption

Students found this question challenging. High-scoring students gave a sensible instruction for identifying an image file and followed their instruction in the example, then went on to indicate how the caption file name would enable the two files to be quickly associated and again provided a filename that followed their instruction. Low-scoring answers often gave a sensible instruction but did not follow it or used symbols such as / in the file name, which was not awarded a

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mark. To obtain full marks the two image and caption filenames needed to be able to be easily associated with each other.

## Question 11

### 11a.

Marks	0	1	Average
%	58	42	0.4

Expected responses included:

- bills cannot be produced promptly because signatures take too long to arrive at the office
- Fast and Furious are having difficulty collecting payments promptly.

Students found it difficult to identify the problem and not just directly copy text from the question. It was expected that students would state the problem in their own words.

### 11b.

Marks	0	1	2	3	4	Average
%	14	11	26	16	32	2.4

Examples of correct responses include the following.

Time efficiency	Explanation
Signature sent electronically	<ul style="list-style-type: none"> <li>• The office does not have to wait until Friday for evidence of delivery so invoices/bills can be prepared sooner.</li> </ul>
Text messages rather than voice messages	<ul style="list-style-type: none"> <li>• Using text messages means addresses are on the screen immediately and the driver does not have to find a pen and paper and write the address of the next job down.</li> <li>• The address can be sent regardless of whether the driver is in the vehicle, unlike the previous two-way radio message, therefore saving time between deliveries.</li> </ul>

Again, in this question most students identified the time efficiency but the lower scoring students had difficulty explaining how the time efficiency was achieved.

### 11c.

Marks	0	1	Average
%	47	53	0.5

Expected responses included:

- survey – survey the drivers, asking them if scanning the signature is quicker than taking docket back to the office
- observe – time how long it currently takes for drivers to take down addresses and compare this with how long it takes for a driver to access their text message
- log – record the number of deliveries made by drivers now and compare it with the number made prior to using the PDA.

The question said describe, so a one word answer such as ‘survey’ was not awarded any marks. No marks were awarded if the response related to the office and not the driver as indicated in the question.

## Question 12

### 12a.

Marks	0	1	2	Average
%	19	16	64	1.5

The most common responses were:

- salaries – the manager could save the wages of the employee who works at the ticket counter for four hours each day
- staffing levels – the manager could reduce the number of staff needed and thus save money on salaries as only the candy bar needs staffing



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The vast majority of students were able to identify that there would be savings in staffing levels but could not always explain it sufficiently to be awarded the second mark.

## 12b.

Marks	0	1	2	Average
%	34	15	51	1.2

Changeover method

- parallel

Justification

- Staff can assist patrons as they adjust to the new system.
- Provides a backup system if the touch screen fails or customers don't want to use it.
- Allows time for customers to become familiar with the new system.

The majority of students chose parallel as the changeover method and could justify their choice. Several students left this question blank or selected phased, which was not awarded marks as it was inappropriate for the scenario given.

## 12c.

Marks	0	1	2	3	4	Average
%	33	4	15	18	30	2.1

Examples of correct responses include the following.

Type of user documentation	Justification
Printed user guide, poster	Users need to be able to see the instructions as they are using the system; a printed guide allows them to do this.
On-screen user guide	Messages or instructions on the screen itself step the user through the process as they are doing it and cannot be lost.
Brochure	Users can familiarise themselves with how to use the machine before going to the cinema.

Location of documentation	Justification
Mounted permanently on the machine	Users need the information in the same location as where they are to use the system.
Stored on the computer and displayed on the screen	Images displayed on the screen would match what users see at the step they are up to.
Beside the machine, on the wall above the machine	Users need the information close at hand when they are using the machine.

Students either understood what user documentation was required or found this whole question difficult. A number of students misinterpreted the question and appeared to think it was about what was printed on the ticket or that movie patrons needed some form of identification to prove they were over 18. No marks were awarded for either of these responses.

## 12d.

Marks	0	1	2	3	4	Average
%	20	6	25	9	40	2.4

Some typical questions and responses that were awarded full marks are given below.

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Question	Response 1	Response 2	Response 3	Response 4 (optional)
<b>Issue – Clarity</b>				
Were the instructions clear?	The instructions were easy to follow	The instructions were fine if I read them twice.	The instructions were confusing.	
Could you follow the instructions?	Yes, all the instructions were clear.	Yes, I could follow most instructions.	No, some of the instructions confused me.	No, I didn't understand any of the instructions.
<b>Issue – Response time</b>				
Was the response time appropriate?	The machine responded very quickly.	The machine response was at the speed I prefer.	The machine responded slowly.	
Did the machine move through the screens at the right speed?	The machine responded quickly to my selections.	The machine was slow responding to my selections.	The machine made me wait too long between making each selection.	
How quickly did the machine respond to your requests?	In less than 5 seconds.	Between 5 and 10 seconds.	Between 10 and 20 seconds.	Over 20 seconds.

This was a different style of question to previous papers so it was pleasing to see that the vast majority of students attempted to complete part d. even if they had left other parts of Question 12 blank. Students with lower scores on this question had difficulty relating their question to the two areas specified. A number of students' questions were about topics other than those required, such as the user's preference for the ticket machine or buying a ticket from an employee, or how long they waited in the queue. Students also found it challenging to provide a range of responses. Providing the sample first question obviously gave appropriate direction to many students who were then able to write questions and graduated responses.