



2003 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.

In 2003, the paper consisted of two sections for the first time and was worth 90 marks. The first section consisted of 20 multiple-choice questions, worth 1 mark each and the second section consisted of short-answer and extended-response questions worth 70 marks.

Overall, student responses to the new format were very pleasing. Very few students did not attempt all of the 20 multiple choice questions and the range of scenarios in the second section of the paper allowed students to demonstrate the breadth of their understanding of the key knowledge associated with the study design. A small proportion of students rewrote the question in the space provided in the question and answer booklet before commencing their response and teachers should indicate to students that this is not required and often means that the space in the answer booklet is not used effectively.

The paper tested a wide range of the key knowledge from the new study design and it was evident in the student responses that teachers had covered the course content. However, there were a number of students who were clearly still unfamiliar with the terminology used in the study design. Teachers need to ensure that students are familiar with the definitions in the study design's glossary (page 82–86) as these were used in setting the examination. It was expected that students would be familiar with them although some issues were particularly noticeable in Questions 3, 4, 8 and 12c.

The paper provided a spread of scores with the lower scores pertaining to students who were either unable to explain their answer or who did not pick up on the prompts in the questions. For example in Question 10b, there were five areas given to address in their strategy and it was disappointing to see the number of students who did not address all five areas. Lower scores were also given to responses that did not respond in the way indicated by the stem of the question, e.g. listing an answer when an explanation was required. Teachers should ensure that students note carefully the type of response required for each question. Students who were able to explain their answers, when required, and relate it to the case study material in the question generally achieved higher scores.

The 2003 paper frequently indicated in the question how many reasons or responses were required, for example, in Question 1 students were asked to 'State two reasons ...', and students need to provide what is requested. A number of students provided more than two reasons in Question 1 but assessors marked the first two reasons provided.

The inclusion in the 2003 paper of a greater variety of material appeared to assist students in responding to questions and the questions worth four marks or more provided an effective spreading of student grades.

SPECIFIC INFORMATION

Section A – Multiple choice

This table indicates the approximate percentage of students choosing each distractor. The correct answer is the shaded alternative.

Question	A	B	C	D
1	15	79	3	3
2	18	67	9	6
3	2	4	3	91
4	15	5	7	73
5	74	15	5	6
6	28	2	65	5
7	14	35	47	4
8	32	3	17	48
9	4	6	60	30
10	6	8	74	12
11	70	6	6	18
12	2	5	52	41

13	19	58	13	10
14	3	24	45	28
15	21	14	23	42
16	68	18	5	9
17	13	7	1	79
18	3	89	4	4
19	24	62	7	7
20	15	11	9	65

Section B

The following responses to the questions in the short-answer/extended-response section of the paper represent expected or common responses and are **not** an exhaustive list.

Question 1

Marks	0	1	2	Average
%	5	30	65	1.60

Students were required to state a reason. A lengthy response was **not** required. The most common reasons were:

- the printer will not print in colour
- the printer will not print A3 posters as required
- the printer will not be able to reproduce high-quality resolution for the graphic images.

Question 2

Marks	0	1	2	Average
%	25	36	39	1.13

Some students found it quite difficult to define relevance without using the word relevant and frequently did not read the question, which asked for one example of **relevant** information. A large number of students gave an example of irrelevant information. It was expected that the description would say that the information should be meaningful to the person receiving it. An example of relevant information is:

- in a student VCE newsletter at the end of September, the date and time of the Year 12 Valedictory Dinner to be held in October.

Question 3

Marks	0	1	2	Average
%	50	21	29	0.79

The question asked students to **identify**, so detailed explanations were not required but the convention had to relate to the numeric data. A number of students did not appear to understand the word convention or relate their response to the numeric data.

The most common responses were:

- numbers are right aligned
- numbers use comma format to show thousands and millions
- grand totals are bold and are double underlined.

Question 4

Marks	0	1	2	3	Average
%	19	29	39	13	1.46

Most students were able to explain the role of the CD-ROM and give a limitation but very few were able to describe a capability. Many students simply repeated the role of the drive as its capability rather than describing how well it performs its function. The expected responses were:

Role

- to read files previously stored on CDs
- to retrieve or access stored files.

Capability

- 48 speed ensures faster retrieval than a floppy disk
- Drive accesses data on CD directly, not in sequential order
- Drive can access around 600–700MB of data/information from one CD.

Limitation

- cannot write to the disk as it is only a CD-ROM drive so cannot be used to store files created by the user
- it can only read certain media (cannot read DVDs).

Question 5

a

Marks	0	1	2	Average
%	16	31	53	1.37

Students generally handled this question well and were able to identify and describe how it worked. The two most common responses were:

Method	Description
User ID and Password	When a customer purchases an item, they would be given a User Code based on their name and asked to set a password. To access the members' section later, the customer would need to enter their unique user ID and then correctly enter the set password.
Membership Number	When a customer purchases an item they are automatically assigned a membership number which is requested when they click to enter the members only area.

b

Marks	0	1	2	Average
%	16	39	45	1.29

Students were required to discuss ONE concern. To obtain full marks students were required to relate their concern to the privacy legislation. Many students only answered half the question, focusing either on the concern and not on how this connected to the legislation or focusing on what the legislation states without indicating how Mr Fedora might be causing problems. The most common response was to raise the concern of how information obtained for one purpose was being used.

Concern	Current Legislation
Use of information collected for warranty purposes is being used for membership on a website.	Current legislation requires Mr Fedora to inform customers of how information collected will be used. There is no indication that this has been adhered to or the ways in which Mr Fedora will use the information he collects.
Privacy of personal details on the website.	The point of all current privacy legislation is to ensure that individuals can expect businesses, of which they are clients, to respect their personal information and handle it responsibly, not releasing it to third parties without informing the individual that this may occur. Mr Fedora does not indicate what his policy is, or how he will ensure that information on his website will not be available to anyone who logs on. The list is available to all members. This breaches the <i>Information Privacy Act 2000</i> , which indicates that companies cannot pass on personal information, e.g. provide email addresses to a third party without permission.

Question 6

Marks	0	1	2	Average
%	43	22	35	0.92

Students found this question difficult and often listed a validation technique rather than describing it and either did not provide an item that would be rejected by the technique or provided an item that would be accepted by the technique. It is essential that students read questions carefully to ensure they answer the question that is being asked. Regardless of whether the student selected spreadsheet or database, the most common responses by students were to use a range check or limit the data type that could be entered into a cell or field.

Range Check – predefining the acceptable range of values that can be entered into a field.	Setting the field values from 3000 to 3999 for Victorian Postcodes. Entering 6453 as a Victorian postcode would be rejected as it is outside the range set.
Validation Rule – entering a validation rule when defining a field restricts the data an user can enter.	If the validation rule says '>50 and <100' then 1000 will be rejected.

Question 7

Marks	0	1	2	3	Average
%	12	12	65	11	1.74

Generally, students wanted to allocate all of the options over the three statements. As a result only a small percentage of students obtained full marks for this question, as the most common response was O, S, T. This answer was: (O) perational, (S) trategic, (O) perational.

Question 8

a

Marks	0	1	2	Average
%	21	44	35	1.14

Students knew in general what a firewall was although many of them had difficulty in describing how it worked. There was some confusion among students about the barrier being used to stop viruses. The most common response was to

describe it as a security barrier between two computer networks that had a set of rules, which enabled it to block unwanted messages and unauthorised requests.

b

Marks	0	1	Average
%	49	51	0.51

Student responses to this question were quite varied and it was often left unanswered. The most common responses, however, focused on the:

- need for technical expertise to set up and manage the firewall effectively
- checks slowing down the network
- fact that it can still be bypassed by hackers.

c

Marks	0	1	2	3	Average
%	27	17	16	40	1.69

It was expected that students would explain why option three was more likely to be encrypted than both option two and option one. However, a number of students responded in a more general way, justifying their selection. In this instance it was decided to accept a more general justification provided the student made two clear points as to why they had selected option three. However, teachers should be aware that the examiners expect in the future that if a student is given two or more options and asked to justify their choice, students must relate their justification to the options provided.

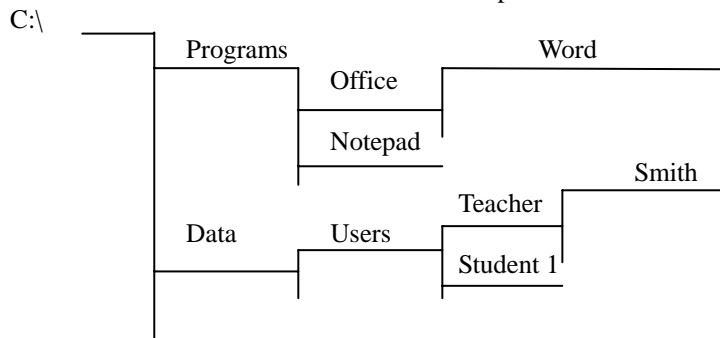
In this question students commonly misread option two as containing personal bank account details rather than requesting them. The anticipated response was:

- option three is more likely to be encrypted than option one because confirming a time for a meeting has no information in it, which would enable an unauthorised user to enter the information system, and no location is provided
- option three is more likely to be encrypted than option two because the more personal data, which could be used by another person, is not in the email. The user is being asked to provide the sensitive data.

Question 9

Marks	0	1	2	3	4	Average
%	19	4	9	14	54	2.78

Generally, students handled this question well. The most common error was to assume that all sections of the diagram needed to have entries and a small number of students placed files in the users folder.



Question 10

a

Marks	0	1	2	3	Average
%	23	34	30	13	1.32

In general, students found this question quite difficult. It was clear that students did not think the recommendations were appropriate, but they found it hard to explain the concern if the recommendation was implemented. The most common correct responses were:

Recommendation 1: Two tapes be purchased and rotated.

Two tapes are not sufficient because:

- if one was damaged then you are always over writing the current backup
- you can only restore/retrieve files from the last two days.

Recommendation 2: All program files are backed up daily.

- program files do not change frequently and so do not need to be backed up daily
- backing up program files daily is a waste of media space or a waste of time as they do not change very often.

Recommendation 3: Back-ups should be done at 9 am

9 am is an inappropriate time to complete a back-up because:

- it is the time the library opens and users will want to login and start up the system and the back-up will make the system too slow
- if done at 9 am then none of the previous days changes are saved if something happens overnight.

b

Marks	0	1	2	3	4	5	Average
%	15	10	17	21	20	17	2.69

In general, students had been taught about back-up procedures and could recommend appropriate strategies; however, there were weaknesses in many responses. Firstly, students did not address the five areas listed in the question and secondly, their description of a back-up strategy was inappropriate for the organisation described. For example, a small number of students recommended backing up every time a book was borrowed or returned or every ten to 15 minutes.

The expected response was:

Item	Recommendation
Content	Data files to be backed up daily. Program files to be backed up weekly or after changes.
Timing	Backing up to be done after hours in the evening.
Storage	Backup to be stored off site OR Backup to be stored away from the computer.
Media	Tape backup OR CD burner.
Frequency	Backed up daily (incremental) and backed up weekly (full).

Question 11

a

Marks	0	1	Average
%	45	55	0.55

Students either knew this or tried to reply with a type of network topology (e.g. star). Accepted answers were WAN or Wide Area or Wide Area Network.

b

Marks	0	1	2	Average
%	53	27	20	0.66

Students could not describe bandwidth limitations and in general found it difficult to relate to the case study, other than quoting the article. At Year 12 it is expected that students will be able to explain in their own words and not just write down the exact phrase that appears in the article. The examiners expected students to respond as indicated below.

Bandwidth limitations:

- refers to the amount of bytes that can be transferred in a set amount of time

OR

- indicates the amount of data that you can send across your connection, the lower the bandwidth the slower the response time.

Reference to the article:

- a video image of teachers and students would take a lot of bytes to look real and so if there is a restriction on the bandwidth then fewer images will be used, e.g. teachers only initially.

An example was accepted if it related to the distance education scenario, even though it was not directly mentioned in the article.

c

Marks	0	1	2	3	4	Average
%	12	11	32	16	29	2.38

Benefits were required to relate to either real-time or email and most students picked up on this requirement. A number of students left this question blank or only discussed one benefit. Lower order responses tended to list the benefit rather than discuss it. The most common responses related to the following benefits.

- instant response/feedback for students rather than waiting. The new system will allow teachers to receive work within minutes rather than days and to return work equally as quickly
- the teacher can demonstrate visually which is clearer than just words and go over difficult areas immediately. The interaction, possible in real-time, improves the learning experience for students
- more variety of tasks makes education more interesting; students are able to submit a wider variety of work via email, e.g. sound, video, multimedia to the teacher without risking it being damaged in the mail
- immediate response to difficulties; teachers can answer student queries on the spot as they arise rather than waiting for a letter and show them visually how to solve the problem.

d

Marks	0	1	2	Average
%	33	34	33	0.99

The proposed questions in the survey needed to be specific and not general, e.g. Is it more efficient? Students found it difficult to frame a question and often reversed the efficiency and effectiveness responses.

This question **must** relate to efficiency (time/cost/effort)

- is it easier to send your assignments to your teacher?
- does it take less effort to send your work to your teacher?
- has the new system helped you to meet due dates for assignments?

This question **must** relate to effectiveness (improved process/product/output)

- how has being able to see your fellow students improved your ability to understand the work?
- how has having the teacher demonstrate work as you watch improved your understanding of how to complete a task?
- has the new system made your education more interesting?

Question 12

a

Marks	0	1	2	Average
%	10	37	53	1.43

Most students were able to outline two reasons why the manager would suggest a website, although lower marks were awarded to students who repeated the same reason in slightly different words or talked about promoting the store to overseas clients, which was clearly not part of the scenario. The most common reasons were:

- no need to mail interstate or make interstate phone calls
- easy to change or update and cheaper to redesign a website than redo a brochure
- communication, e.g. ordering can be done easily via an online form
- cheaper to display to clients than producing printed brochures
- target audience is generally younger and more computer literate
- a website could allow the user to design their own floral display
- a website is more timely and can have more up to date information than a printed brochure
- the one website can deal with all three locations at once.

b

Marks	0	1	Average
%	23	77	0.77

Students generally handled this well, although it was clear that a small number of students did not know what a screen layout mock-up represented. Accepted reasons included:

- being able to see what the final page/site will look like for approval
- ensuring that the company image presented is what the company requires.

c

Marks	0	1	2	3	4	Average
%	47	7	23	5	18	1.40

Students found it difficult to identify a test that related to functionality and the term was clearly unfamiliar to a large number. Students commonly responded with surveys, which showed customer satisfaction rather than testing functionality. Those students who were able to identify a test that related to functionality of the solution still had difficulty explaining how the test would be conducted. The expected style of response was:

Test	Conducted
That links go to the location indicated	I would load the site into a browser and click on each link to see where it took me.
That the web pages/site displayed correctly in common browsers	I would open the web site in a range of common browsers to see if the pages came up with the correct components.
That the on-line order form sends the correct data to the company	I would complete an order and click send. I would then check the company's computer to see if the order was recorded.

d

Marks	0	1	2	3	Average
%	26	13	35	26	1.60

In general, students selected an appropriate sample group but the lower responses showed little evidence of being able to justify the choice made.

Common responses were:

Sample Group	Justification
Engaged couples/couples	Since one of their target markets is weddings, using a sample of people considering marriage will allow them to see if they are able to locate the information they need.
People in their 20s	This group has regular parties and become engaged so targeting this group to test the site enables the company to see if their site provides for their needs.
Other florists	Florists would know the content needed for clients and have an understanding of the industry and what customers want. They are experts.
Expert Wedding Planner	Since there are now people who plan the whole wedding for couples, these people would know exactly what types of questions couples ask and whether the web site provides the necessary information for potential customers.

e

Marks	0	1	2	Average
%	28	18	54	1.26

It was noticeable that students had difficulty justifying their choice. The expected response was option two – number of on line orders placed by email has increased. Accepted justifications included:

- this evaluates effectiveness better because the number of hits does not necessarily reflect in sales. People may have searched for a related word and the search engine brings up this site as a hit and an user checks it out
- the number of orders is a better criterion than the number of hits because the business has made a sale, therefore showing an improvement in performance.

Question 13

a

Marks	0	1	2	Average
%	53	14	33	0.80

Students who could identify a concern were usually able to explain why this was. A number listed concerns that had no relevance to the case study or the tasks being undertaken by the customers, and a small number provided no response to this question. The most common concerns were:

Issue	Explanation
Lifting heavy items	Customers have to pick up and put down each item to self-scan the code. This could cause injuries or back problems
Dropping items	A customer could accidentally drop an item on the floor and it could break and leave glass or liquid on the floor which is an OHS concern for other clients/staff.
Spills	If the contents of an item are spilled and not cleaned up it could produce a risk if it is a chemical or if it is mixed with another spill. If the spill is a liquid it could short circuit the electronic equipment.
Food handling	Food substances need to be handled appropriately to meet current Food handling guidelines.

b

Marks	0	1	Average
%	65	35	0.35

This question was often left blank or an incorrect method of conversion was chosen. The correct response was: Pilot Conversion.

c

Marks	0	1	2	Average
%	30	20	50	1.19

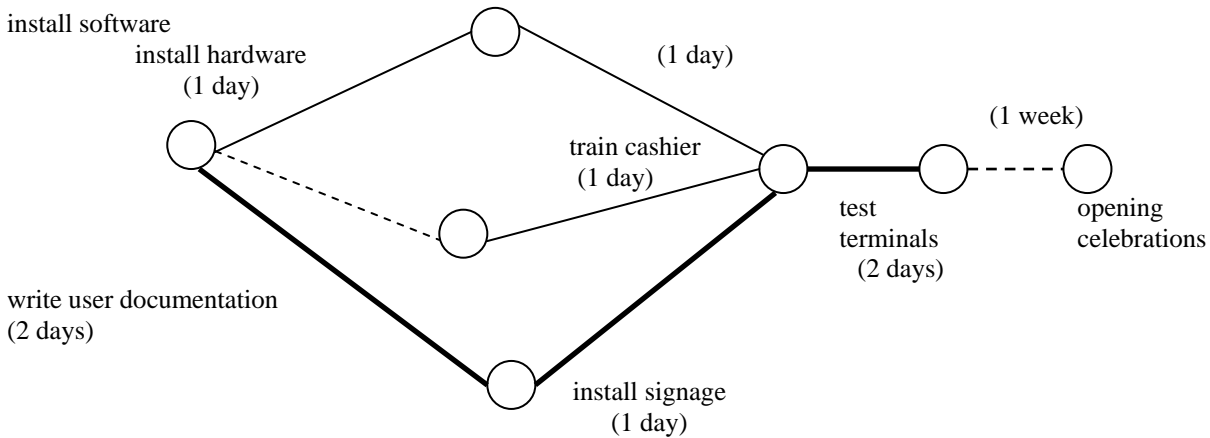
In general, students handled this question appropriately and indicated why costs might not be reduced. However, the common error was to focus on reduced income from loss of customers rather than look at company costs as indicated in the question. Some of the more common responses were:

- customers scanning their own items should reduce the tasks undertaken by cashiers. However, if there is a problem with scanning an item, a staff member will be needed to fix the problem, so staff work will change rather than reduce
- customers may not scan all the items that are in their trolley leading to an increasing problem of theft (shop lifting).
- this will increase the costs of running the store
- allowing all customers to use the equipment may cause more breakdowns and mean that repair bills/maintenance/replacement costs are higher than if trained staff used the terminals
- it will be slower as customers are less experienced than trained staff in using the scanner and so the cashier will be standing around idle for periods of time
- more staff will be needed initially to train customers and they will be needed the whole time that the store is in operation even if there are very few customers using the store (e.g. late at night if it's open extended hours).

di-ii

Marks	0	1	2	Average
%	35	38	27	0.91

This question was poorly done and students frequently omitted to mark the critical path or marked the whole diagram. Students either knew the term and its meaning or were clearly guessing.



In contrast, most students could explain contingency planning and the only common error was to indicate that one of the tasks in the original diagram was going to occur during the week (e.g. training of the cashier). The two most common responses were:

One week has been allowed for:

- fixing any problems that occur during the testing of the system
- allowing for any delays that might occur so that the store meets its opening date.

e

Marks	0	1	2	3	4	5	6	Average
%	8	3	9	11	31	19	19	3.87

In this question the better students had the opportunity to demonstrate their knowledge and the question produced an effective spread of marks. Weaker students were able to identify appropriate groups but in general were unable to come up with appropriate types of training. Better responses provided detailed strategies for each user group. Many students only indicated some of the content of the training, rather than giving a detailed response. The most common responses were:

Group	Type of Training
Cashier	Trained in groups, on site, by a representative of the company during working hours and given an instruction manual on how to assist customers and use the docket to receipt payment OR Trained by the supervisor, in groups, during working hours and given an instruction manual.
Customers	Provided with an information pamphlet and with a sign with instructions beside the terminal. A staff member is available to solve any problems encountered OR Provided with instructions beside the terminal and with a staff member assisting customers during the first week.
Supervisors	Training on site from a company representative, which includes how to solve common problems and appropriate documentation provided. Supervisors would then train cashiers.
Technicians	Training should be provided off site by a representative of the equipment suppliers and include how to diagnose and fix problems. Technicians should have to diagnose and repair problems as part of the training. Access to a help line and a technical manual should be provided.

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