## 2009 _ IT Applications GA 3: Written examination

## GENERAL COMMENTS

The comments made in this report are based on the key knowledge and skills listed in Units 3 and 4 of IT Applications in the *VCE Information Technology Study Design* for 2007−2010. It was very pleasing to see that many responses to the range of scenarios in Section B demonstrated students' understanding of the key knowledge associated with the study design.

In many cases students did not obtain full marks because they did not read questions carefully. For example, in Question 8b. students were asked to describe a procedure to be followed when collecting and storing information. Many students included steps associated with the disposal of information and missed an important step associated with the collection of information.

Generally, students were able to draw on a wide range of practical exercises completed during their studies to demonstrate their understanding of key skills associated with the study design. Their ability to provide specific and technically accurate examples in a range of scenarios indicated that the course content had been covered in breadth and depth.

Teachers are reminded that the study design outcomes require students to recommend and justify equipment and procedures in the process of developing solutions to information problems. In addition, functions related to specific software have been published in the *VCAA Bulletin VCE, VCAL and VET* and appear on the VCAA website <www.vcaa.vic.edu.au>. Examples of procedures and functions include: selecting design tools to represent user interfaces, applying mathematical calculations to data, creating macros to automate tasks, constructing queries and creating reports that assist users in decision-making.

## 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 | 8 | 1 | 90 | |
| **2** | 81 | 4 | 2 | 13 | |
| **3** | 5 | 22 | 38 | 35 | The *Information Privacy Act 2000* applies to government bodies such as local councils in Victoria. Small businesses are covered by the *Privacy Act 1988*. |
| **4** | 73 | 3 | 13 | 12 | |
| **5** | 19 | 29 | 43 | 8 | A structure chart is the best tool to show the relationships between the pages on a wiki website. |
| **6** | 9 | 19 | 67 | 5 | |
| **7** | 3 | 1 | 90 | 5 | |
| **8** | 3 | 72 | 21 | 4 | |
| **9** | 70 | 4 | 13 | 13 | |
| **10** | 12 | 19 | 24 | 45 | This selection protects all the cells holding formulae which calculate the totals. |
| **11** | 38 | 25 | 14 | 23 | The one-to-many relationship is between the records in one table and the records in another table. |
| **12** | 3 | 83 | 3 | 10 | |
| **13** | 3 | 2 | 5 | 89 | |
| **14** | 20 | 8 | 69 | 3 | |
| **15** | 44 | 6 | 8 | 41 | The buildings are 6 km apart. In the absence of any other information, microwave is the best of the available options over this distance. |
| **16** | 21 | 5 | 14 | 60 | |
| **17** | 7 | 75 | 3 | 15 | |

| Question | % A | % B | % C | % D | Comments |
|---|---|---|---|---|---|
| **18** | 8 | 68 | 20 | 4 | |
| **19** | 45 | 7 | 42 | 6 | The emergency plan lists immediate actions needed at the critical time of the disaster. These actions protect the safety of staff first, and secondly, the data and equipment. In the case of dangerous emergencies such as fire and flood, the hardware shutdown procedures are more important than the schedule for reinstalling software. |
| **20** | 62 | 27 | 6 | 5 | |

## Section B – Short answer questions

**Question 1a.**

| Marks | 0 | 1 | Average |
|---|---|---|---|
| **%** | 45 | 55 | **0.6** |

Primary key

**Question 1b.**

| Marks | 0 | 1 | Average |
|---|---|---|---|
| **%** | 37 | 63 | **0.6** |

Incremental

A majority of students correctly identified the backup procedure described as incremental. A number of students identified it as differential backup; this was also accepted.

**Question 2a.**

| Marks | 0 | 1 | Average |
|---|---|---|---|
| **%** | 55 | 45 | **0.5** |

| Input | Process | Output |
|---|---|---|
| Quantity Costs | Quantity* Cost | Total |

Most students could complete the input column correctly but were not able to fill in the process column.

**Question 2bi–ii.**

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| **%** | 57 | 18 | 25 | **0.7** |

**Question 2bi.**
Validated 6 and $2.00

**Question 2bii.**
Tested $12.00

Many students gave variable names and not the values as the question required.

**Question 3a.**

| Marks | 0 | 1 | Average |
|---|---|---|---|
| **%** | 33 | 67 | **0.7** |

Username or login and password

**Question 3b.**

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| % | 9 | 48 | 43 | **1.4** |

- permission or consent
- appropriate content or technical quality for the school's image

This question was answered well. Students clearly described the security and privacy issues associated with using a Virtual Private Network.

**Question 4a.**

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 51 | 49 | **0.5** |

Coaches' server:/Reports/2009/Finance

This path sequence was the most frequent correct response. Other answers without syntax that indicated the given folder names in a correct sequence were also accepted.

**Question 4bi–ii.**

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| % | 9 | 14 | 77 | **1.7** |

**Question 4bi.**
Image/2009/Sports or Reports/2009/Images

**Question 4bii.**
Because it is a sports image from 2009 or because it contains the images for the 2009 report.

Other reasonable responses were accepted where the explanation matched the folder location indicated.

**Question 4c.**

| Marks | 0 | 1 | 2 | 3 | Average |
|---|---|---|---|---|---|
| % | 25 | 28 | 25 | 22 | **1.4** |

The three-step responses most frequently accepted were:

| | | |
|---|---|---|
| 1. Open the file<br>2. Save As and a new name<br>3. Edit, save and resend | 1. Right click – Properties<br>2. Unclick Read Only<br>3. Edit, save and resend | 1. Open the file<br>2. Copy the text to a new file<br>3. Edit, save and resend |

Other responses were also accepted where it was deemed the actions listed would help Jack to edit and resend the file. Many students correctly supplied one or two steps.

**Question 4di–ii.**

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| % | 45 | 36 | 19 | **0.8** |

**Question 4di.**
Team members or coaches upload data to the wiki database.

**Question 4dii.**
Accuracy is checked and edited by other team members.

Responses which made statements about site monitors or moderators were also accepted.

**Question 5i–ii.**

| Marks | 0 | 1 | 2 | 3 | 4 | Average |
|---|---|---|---|---|---|---|
| % | 17 | 20 | 26 | 21 | 15 | **2** |

**Question 5i.**
The most common correct responses were: a firewall prevents **external** connections or threats and does not stop **internal** connections or threats. Other examples of disadvantages were accepted, such as the firewall is expensive and has to be regularly updated.

**Question 5ii.**
Encryption involves using a key to scramble data so it cannot be read if intercepted during communication. It has the disadvantage of being complex to use and the key can be lost.

These were the most common correct responses and a majority of students scored two marks or more for this question.

**Question 6a.**

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 42 | 58 | **0.6** |

A visual representation lets you see if all content is present and if the layout is clear.

Other answers which conveyed the notion of being able to see the content and layout before creating an actual input screen were also accepted.

**Question 6b.**

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| % | 84 | 4 | 12 | **0.3** |

A flowchart was the most frequent correct response. Other correct responses included decision tree, pseudocode, Nassi-Schneidermann diagram and structured English. Students justified these answers with explanations that conveyed ideas such as 'You can see the branch/decision and path options', 'You can easily pick up logic errors' or 'You can check the sequence of processes'.

Very few students were able to recommend a design tool to represent the IF statement in the macro.

**Question 7**

| Marks | 0 | 1 | 2 | 3 | Average |
|---|---|---|---|---|---|
| % | 5 | 7 | 22 | 65 | **2.5** |

Physical security – window bars or padlocked processor case
Descriptions that conveyed the notion that the security device prevents users from touching or stealing equipment were awarded the mark.

Electronic security – user name or password
Descriptions that conveyed the notion that software prevents unauthorised users from accessing the workstation, information or network were awarded the mark.

Biometric security – iris scan or voice recognition
Descriptions that conveyed the notion of recording a unique image of the eye or voice and using these to identify authorised users were awarded the mark.

This question was very well answered.

**Question 8a.**

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 85 | 15 | **0.2** |

*Privacy Act 1988*

**Question 8b.**

| Marks | 0 | 1 | 2 | 3 | Average |
|-------|----|----|----|----|---------|
| %     | 24 | 31 | 34 | 11 | **1.3** |

The most frequent correct responses covered purpose, consent and security.

Typical statements included:
- purpose: inform customer about use
- consent: obtain customer's permission
- security: safe storage or regular backup procedures.

Very few students could recall the law which covers the car dealer's responsibility for the information described. A pleasing majority of students could, however, describe at least one step of a three-step procedure to protect the information during collection and while being stored. Many students included steps associated with the disposal of the information but did not receive a mark.

**Question 8c.**

| Marks | 0 | 1 | 2 | Average |
|-------|----|----|----|---------|
| %     | 60 | 17 | 23 | **0.7** |

Delete or overwrite using appropriate software that destroys the information
Justification – to ensure the data cannot be recovered

Many students understood that deleting a file does not prevent the information being recovered later. Responses which received full marks described using software to overwrite the information so that it could not be recovered. A number of students made their argument by recommending various procedures to totally destroy the flash disk. These responses were awarded one mark because this solution is expensive and not the most efficient.

**Question 9a.**

| Marks | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Average |
|-------|----|----|----|----|----|----|---|---------|
| %     | 14 | 12 | 18 | 19 | 19 | 10 | 7 | **2.8** |

Students identified a variety of features to describe how layout had been applied to the Purity Water Company website. These included proportion, orientation, clarity, consistency, contrast, visual hierarchy of information placement and font size. Explanations that included specific examples from the website were awarded three marks. For example, 'the company name is in a large font at the top of the page and other information like Target 145 is grouped under this bold heading with details in a smaller font. The hierarchy is according to font size and place on the screen' or 'it is set out with the most important heading first with lots of white space and the biggest font'.

Many students correctly described relevance with the statement 'the words and images are about saving water'. Explanations that also provided specific examples of water saving words, images and links from the page were awarded three marks.
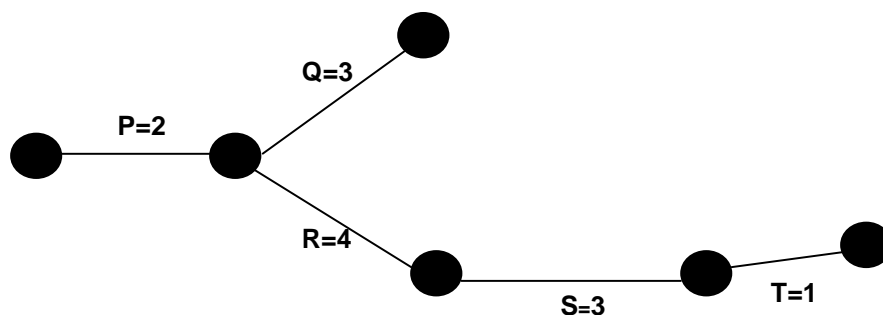
**Question 9b.**

| Marks | 0 | 1 | 2 | Average |
|-------|----|----|----|---------|
| %     | 44 | 18 | 38 | **1** |

A majority of students correctly identified an audience characteristic and the most frequent correct responses identified culture and age. Explanations included statements about 'the Other Language option' the use of 'simple uncomplicated language' and large fonts 'surrounded by white space'. Other responses which referred to special needs, or language or computer literacy and made clear links to a feature of the site were also awarded marks.

**Question 10a.**

| Marks | 0 | 1 | 2 | 3 | 4 | Average |
|-------|----|----|----|----|----|---------|
| %     | 21 | 3 | 8 | 31 | 37 | **2.6** |

**Question 10bi–ii.**

| Marks | 0 | 1 | 2 | 3 | 4 | Average |
|-------|-----|-----|-----|-----|-----|---------|
| % | 23 | 8 | 16 | 33 | 20 | **2.2** |

These questions were answered very well. Many students received three out of four marks in each part of the question. The most frequent source of error in both parts of the question was associated with Task Q. Slack time is available to Task Q, which is not a predecessor to the other tasks. The length of this slack time was calculated directly from the Gantt chart by counting the working days following Task Q.

**Question 10bi.**
Tasks: P R S T are on the critical path
Length: 10 days

**Question 10bii.**
Tasks: Q has slack time
Length: 5 days

**Question 11ai–ii.**

| Marks | 0 | 1 | 2 | 3 | Average |
|-------|-----|-----|-----|-----|---------|
| % | 5 | 8 | 14 | 73 | **2.6** |

**Question 11ai.**
Units in Stock

**Question 11aii.**
Units in Stock and Unit Price

Most students identified the correct field names for both parts of this question and were awarded full marks. Some students chose to rename the fields. Marks were given where the renaming was unambiguous and the answer was correct.

**Question 11b.**

| Marks | 0 | 1 | Average |
|-------|-----|-----|---------|
| % | 70 | 30 | **0.3** |

Supplier = Bunny Podcasts

Other responses which equated the Supplier field to Bunny Podcasts or described a procedure to find that name in the correct field were also awarded a mark.

**Question 11ci–ii.**

| Marks | 0 | 1 | 2 | Average |
|-------|-----|-----|-----|---------|
| % | 57 | 25 | 18 | **0.6** |

**Question 11ci.**
If Units in Stock<= Reorder Level

Other responses which indicated that the quantity in the Units in Stock field should be less than or equal to the quantity in the Reorder Level field were also awarded a mark.

**Question 11cii.**
Product = 1 and Units in Stock = 19

Other responses which provided examples from the data sheet that correctly triggered an alert were awarded the marks. For example, Product = 3 and Units in Stock = 1, or descriptions of made-up correct examples.

**Question 11d.**

| Marks | 0 | 1 | 2 | 3 | Average |
|-------|----|----|----|----|---------|
| %     | 30 | 29 | 28 | 12 | **1.2** |

Designs for screens with a title, seven labels and at least one command button received full marks. The most frequent correct design included the title 'Australian Suppliers', labels for all seven fields shown in Upod's Australian Supplier table and a print or add new command button.

Many students forgot give their screen design a title.

**Question 11ei–iii.**

| Marks | 0 | 1 | 2 | 3 | Average |
|-------|----|----|----|----|---------|
| %     | 14 | 29 | 32 | 25 | **1.7** |

Ethical dilemma

Many students suggested that Upod management should not disclose information to another company without knowing how it would be used. Responses that included questions about social or personal responsibility were awarded a mark.

Many students suggested UGambling management's goal was to make money for the company and that they probably did not know the age of the recipients. Responses that included questions about UGambling management having a social or personal responsibility were awarded a mark.

The most frequent responses awarded a mark were: 'Do you think it's OK to encourage teenagers to gamble?' and 'Do you think it's OK to mislead people about the effects of gambling?' Many students framed other good questions that challenged UGambling's responsibility in the situation.

**Question 12a.**

| Marks | 0 | 1 | Average |
|-------|----|----|---------|
| %     | 87 | 14 | **0.2** |

=VLOOKUP(C6, $F$8:$G$10,2) or =VLOOKUP(C6, F$8:G$10,2)

These were the most frequent correct responses. Other correct responses were also awarded a mark. Most students had difficulty in writing this formula.

**Question 12bi–ii.**

| Marks | 0 | 1 | 2 | 3 | 4 | Average |
|-------|----|----|----|----|----|---------|
| %     | 26 | 11 | 20 | 25 | 19 | **2** |

These questions were generally well answered.

**Question 12bi.**
=IF(C12>900, "Alert", " ")

**Question 12bii.**
The most frequent correct responses placed the alert in C13, D12 or D13 and gave 'because it is close to C12 or in a clear space or seen easily' as an explanation.

Other reasonable cell placements were accepted when accompanied by a good explanation.

**Question 12biii.**
Cells C6 to C11 with a weight that causes C12 to exceed 900 kg were accepted.

**Question 12c.**

| Marks | 0 | 1 | Average |
|-------|---|---|---------|
| % | 91 | 9 | **0.1** |

Sheet reference in cell is **DeliveryCost!C12** was the most frequent correct response.

Few students could write a formula for sheet references. Many students used the term 'sheet reference' but did not go on to complete the formula.

**Question 12d–ii.**

| Marks | 0 | 1 | 2 | Average |
|-------|---|---|---|---------|
| % | 49 | 14 | 37 | **0.9** |

**Question 12di.**
Trend, bar or line graphs were the most frequent graphs awarded a mark. Other responses that provided detailed descriptions of how monthly petrol usage could be summarised on a page were also accepted.

**Question 12dii.**
Many students justified their choice of graph by explaining that it permitted 'easy comparison of monthly petrol totals' or 'allowed the user to visualise trends'.

**Question 12ei–ii.**

| Marks | 0 | 1 | 2 | Average |
|-------|---|---|---|---------|
| % | 58 | 20 | 22 | **0.7** |

**Question 12ei.**
Students suggested a variety of procedures to automatically create a delivery slip for each customer. These included 'mail merge or link the data from DeliveryCost and Customer Info into the delivery slip', 'write a **macro** to copy and paste the data from the other worksheets into the delivery slip' and 'import the data into a database file and create the delivery slip in a database'.

**Question 12eii.**
The most frequent correct responses stated 'an automatic procedure will make the process faster'. Some also stated 'make it easier'.