VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

2013   Information Technology: IT Applications GA 3: Examination

GENERAL COMMENTS

The 2013 IT Applications examination assessed the key knowledge and key skills in the *VCE Information Technology Study Design*. The stages of the problem-solving methodology set out on pages 16 and 17 of the study design underpin all learning and assessment activities in the study. Students are expected to apply this methodology when solving problems in the various settings prescribed for Units 3 and 4. The four outcomes, two in each unit, provide the contexts for the examination questions.

Generally, responses drawing on knowledge gained from completing practical activities during the learning process were the most successful. High-scoring students had, for example, a clear understanding of the influence of design elements on the appearance of websites, and the ability to select and apply test data when developing solutions for information problems. They could also choose appropriate data types when creating tables for a relational database management system and design queries and formulas using logical conditions that returned information for specified purposes.

Where questions required extended responses, many students completed most of the task but did not address all parts of the task. For example, some students provided accurate descriptions of either a database or spreadsheet solution but failed to provide test data for the second requirement. For example, many successful responses had been divided into sections, with detailed answers set out under headings for each part of the question.

While the majority of students could design a website and annotate their design to explain the relationships between the features of their design and the requirements of the design brief (Section B, Question 11), a significant number mistakenly used their annotations to simply describe fonts, sizes and colours without explaining their purpose. With the exception of navigation, few students were able to recommend a design element related to the functionality of a website (Section B, Question 9b.).

Students and teachers are reminded that a number of key knowledge points are expressed in terms of efficiency and effectiveness. For example, they require an understanding of how particular functions or techniques increase the efficiency of collecting data (Unit 3, Outcome 2) or the ability to create criteria for evaluating the effectiveness of information management strategies (Unit 4, Outcome 2). Demonstrating an understanding of these key knowledge points involves explaining how the function or technique reduces time, cost or effort in the case of efficiency, or how a management strategy improves data integrity, security, ease of retrieval and currency of files in the case of effectiveness. It is not sufficient to simply use the words 'efficient' or 'effective'.

In general, responses that provided examples taken from the context of the scenarios were the most successful.

SPECIFIC INFORMATION

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.
This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding errors resulting in a total less than 100 per cent.

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	9	3	76	11	
2	5	20	68	8	
3	71	25	2	2	
4	8	65	14	12	
5	55	6	18	21	
6	18	80	1	1	

2013 Examination Report

Question	% A	% B	% C	% D	Comments
7	11	5	75	9	
8	66	12	2	20	
9	10	4	0	86	
10	6	75	1	17	
11	6	3	21	70	
12	75	13	2	10	
13	9	5	27	58	
14	10	53	9	28	
15	91	3	4	2	
16	32	15	11	42	The primary purpose of a proxy server is to accept requests from clients seeking resources from other servers. This statement describes the relationship between servers. The proxy server is smart; its primary purpose is to identify and send requested resources to other servers.
17	9	9	81	1	
18	17	15	46	21	The managers have not met their legal obligations under the *Health Records Act 2001* when disposing of patient data. Selecting and deleting the patient files from a hard disk does not ensure the data cannot be recovered. The managers should have overwritten the data in the files before donating the computers to a school. They could have used software designed to do this.
19	11	4	64	21	
20	16	64	8	12	

Section B

Question 1

Marks	0	1	Average
%	44	56	**0.6**

Successful responses indicated that the *Spam Act 2003* aimed to stop unwanted emails sent by a business. Examples included 'to prevent unsolicited commercial emails', 'to stop companies sending emails to people who don't want them', 'make businesses provide an unsubscribe button for people on their email list' or 'prevent businesses using address-harvesting software to send bulk emails'.

Question 1b.

Marks	0	1	2	Average
%	43	12	45	**1**

Most students could identify an online social protocol; for example, 'You must not use capital letters (uppercase text) because it's considered to be shouting'. However, many students did not explain the purpose of the protocol; for example, 'Shouting will frighten some users and stop them from giving their point of view'.

Question 2

Marks	0	1	2	3	4	Average
%	5	2	19	10	63	**3.3**

Following is an example of a correct response.

Problem	Equipment or procedure	Reason
images stolen by unauthorised users	Have a closed section of the website that only couples with the correct password can access.	Creating a closed section where each couple has a password that allows them to access their images will prevent others from stealing or viewing the images.
images accidentally deleted by authorised users	Regular backup procedure for the images on the website.	This means there will always be copies that can be restored if they are lost.

This question was very well answered.

Question 3

Responses to this question most frequently covered the 24/7 access and geographic reach of the internet.

Question 3a.

Marks	0	1	2	3	4	Average
%	5	6	32	15	41	**2.8**

Online order forms have 24/7 access so that 'customers can order at any time'. This increases the hours available for business, leading to the possibility of increased sales. They can also be 'accessed immediately by people browsing' or 'using search engines', which 'increases the number of locations the business can reach' and 'leads to increased sales'.

Question 3b.

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

Most students gave one of the following two responses to this question.

Direct data entry is more accurate because
- details are only entered into the system once, hence reducing the possibility of further entry errors
- the person ordering is more likely to spell their own name and address correctly.

Question 4

Marks	0	1	2	Average
%	19	47	34	**1.2**

Many students chose navigation and accessibility as the design elements for discussion.
- Navigation: To feel comfortable in the virtual scenario, online gamers 'need to find information easily and move quickly to what they want'.
- Accessibility: Gamers need text, audio and video modes to provide information quickly in a game situation because individuals respond differently to different media. Some get more details from audio, others from text and others from images.
- Structure: Gamers want their website organised into secured and non-secured sections so that members can privately reward and celebrate gaming achievements and build their collective identity.
- Usability: A gaming website must allow gamers to confidently, easily and accurately issue game instructions, or else they will leave.

Question 5a.

Marks	0	1	2	Average
%	12	34	54	**1.4**

Most students could describe how online tutorials would help staff who are learning to use a new online sales system. They were less able to describe how content-sensitive help would be beneficial in this scenario.

Typically, correct responses described online tutorials as providing 'step-by-step instructions on how to use all the features of the software' and content-sensitive help as 'providing help for a particular/specific problem at the time when it is needed'.

Question 5b.

Marks	0	1	2	3	Average
%	23	20	30	28	**1.6**

Students who chose content-sensitive help, arguing that it is 'used only when needed' and that users do not have to waste time working on 'features they will never need', received marks.

Many students chose an online tutorial as the more efficient type of documentation, arguing that by learning the 'whole package up front, users are less likely to stop for lots of little problems', and that having the 'big picture' means users are more able to solve little problems themselves. These responses were awarded marks. The few students who argued coherently for other types of user documentation also received marks.

Question 6a.

Marks	0	1	2	Average
%	20	14	66	**1.5**

This question was well answered. Examples of common responses include 'bolding title font', 'separating the sections with spaces or lines' and 'using a table format to present purchases and prices'.

Question 6b.

Marks	0	1	2	3	Average
%	16	16	23	45	**2**

This question was answered in two different ways. Both received marks.

Many students chose three different items on the receipt and suggested how to test each. For example, 'scan a whole hot chicken and see if the amount is correct, manually calculate receipt rewards and check with receipt total and see if it is in the store, and hand calculate the items and check the total'.

Other students described a three-step testing procedure to check the accuracy of the calculation. For example, 'determine test data for five random grocery items, manually calculate the total and compare the expected total to the automatic total of the scanned items'.

Question 7a.

Marks	0	1	2	3	4	Average
%	20	26	32	20	2	**1.6**

Most students could separate the data into two data tables as part of completing the second normalisation of the data table. However, many did not give titles to the new tables or create primary keys. Those students who did typically used Captain Table and Boat Table for the table names and CaptainID and BoatID for the primary keys.

Very few students addressed the problem of where the BoatHours field should be placed. Each captain's pay depends on data collected from the hiring transaction point being entered into this field. Those who placed the field in the Captain Table received marks. Others who correctly used design diagrams to represent two complete tables, their fields and primary keys also received marks.

Question 7b.

Marks	0	1	2	Average
%	41	34	25	**0.9**

Many students stated that the process of normalising one large flat file improves the accuracy of the information Harry can produce. These students received one mark. Those who completed their answer with an explanation of why this is the case received full marks. For example, 'creating two tables with primary keys reduces data redundancy' and 'allows only a single point to update data'. Some students explained that creating two tables with primary keys 'makes it possible to create relationships and simple queries'. These students also received marks.

Question 8a.

Marks	0	1	Average
%	53	47	**0.5**

Information Privacy Act

Question 8b.

Marks	0	1	2	Average
%	12	52	35	**1.2**

Students needed to consider Nancy's ethical responsibilities towards two stakeholders: the students and the school. For example, Nancy has a responsibility to make sure past students' details are kept private and she has a responsibility to her employer, the school, to follow all school procedures when conducting school business.

Question 8c.

Marks	0	1	2	3	Average
%	15	41	33	11	**1.4**

Responses that coherently outlined a strategy Nancy could follow were awarded marks. Most frequently, strategies included consulting with stakeholders, locating relevant information, evaluating the options, applying a process for making decisions and recording (or publishing) decisions.

Question 9a.

Marks	0	1	2	3	4	Average
%	7	7	24	16	46	**2.9**

Complete answers provided an example of the chosen design element and an explanation of how it was used to enhance the appearance of each website. For example, 'contrast is seen in design 1 with the logo – a grey tree on a white background. This catches the reader's eye and gives an underlying idea of what the site represents'.

In design 2, reverse blocking in the navigation bar (white text with black background) contrasts with the black text on white background for the remainder of the website.

Accepted answers for the design element of orientation included the use of either vertical (design 1) or horizontal (design 2) navigation links that complemented other design features. For consistency, students typically referred to font type and size, explaining that changes in font size appropriately matched the hierarchy of information; for example, the largest font size was allocated to the name of the organisation, with the copyright statement being in the smallest font size.

Question 9b.

Marks	0	1	2	3	4	Average
%	25	20	30	12	13	**1.7**

Students who began by stating a preferred design and identifying two design elements associated with functionality established the foundations for a good answer. For example, 'design 2 is my preferred homepage. In relation to functionality it provides better accessibility and navigation'. Students who went on to explain how features in their preferred homepage influenced each design element received marks. For example, 'Accessibility is improved with larger and bolder links and black writing on a white background' or 'it makes it easier for older people to read'. Navigation is easier due to 'the consistency of the menu placement' or 'navigation bar at the top and the logo'.

Question 10a.

Marks	0	1	2	3	4	5	6	Average
%	21	9	14	15	17	14	10	**2.8**

Many successful explanations of how the manager could perform the three tasks were set out under the three subheadings shown below.

Report on sales

Many students explained that the manager could use a graph to report on sales trends for each fruit. Some drew graphs to represent a trend calculated from the QuantitySoldPerKg or Total columns. Others explained how a trend graph or table could be created. For example, 'calculate the QuantitySoldPerKg for apples in Jan, Feb and March and make a

graph to see if sales are going up or down' and 'Use the Total column/field to compare the sales of each fruit for three weeks and report it in a table.'

Identify fruits with sales greater than 500 kg
Successful responses included a conditional statement or formula QuantitySoldPerKg > 500. Those who chose spreadsheet software explained how this statement could be entered into the column and return a message of 'Yes' or 'sales above 500 kg' or 'font colour change' if the condition were true. Those who chose RDBMS software explained how the statement could be used in a query or filter to return a list of fruits whose sales were above 500 kg.

Test the solution
Data to test the report of fruit sales typically included varying values for QuantitySoldPerKg so that the trend was altered as expected. For example, 'change the data from increasing to decreasing and see if the graph changes in the same way.'

Data to test the fruits with sales greater than 500 kg were most commonly 499, 500 and 501. Statements such as 'below the boundary, at the boundary and above the boundary' also received marks.

10bi.

Marks	0	1	2	Average
%	35	39	26	**0.9**

To gain full marks students had to clearly state the technique for identifying the cheapest fruit as well as a way of presenting this information on a web page. Accepted answers included sorting the price per kg column or field from lowest to highest (technique) and either displaying the cheapest fruit name in a text box or bolding it.

10bii.

Marks	0	1	2	Average
%	39	22	39	**1**

There is still some confusion regarding the difference between a format and a convention. A convention is a generally acceptable rule governing the layout or presentation of a format – for example, a receipt has a date; however, the way in which the date is presented or arranged is a formatting decision. There are a variety of date formats such as 28 February 2013; February 28, 2013; 28/02/13; 28-02-2013.

Examples of accepted formats and conventions included a title (convention) or the title being in bold or in all capitals (format) or a title (convention) with an image (format) of the cheapest fruit.

Question 11a.

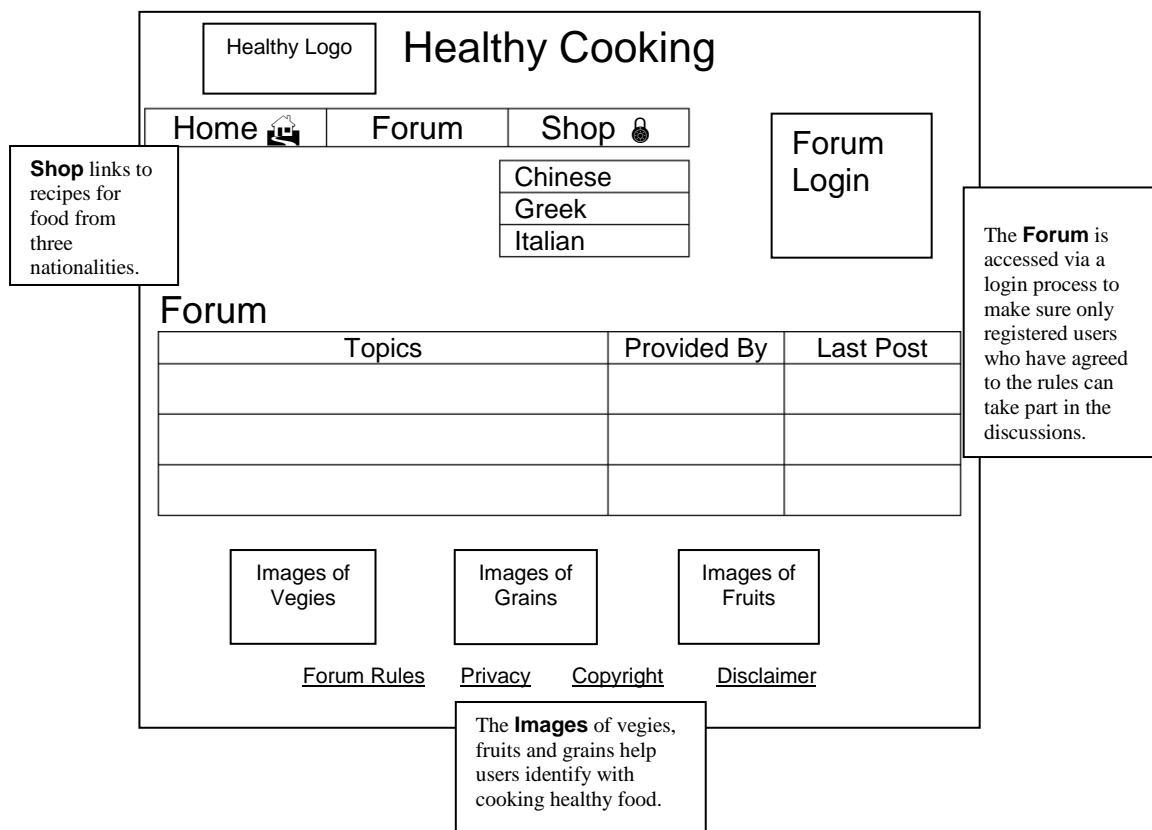| Marks	0	1	2	3	4	5	6	Average
%	5	2	9	20	27	25	12	**3.9**

Successful designs included words and/or icons to represent each of the following requirements specified in the design brief.
- a title and logo
- forum
- indication that the forum is reached by login/password
- link to recipes with three clear food categories
- link to a checkout
- some indication that the checkout is secure.

The design below is a compilation of examples taken from many successful responses. The design shown features a padlock symbol next to the 'Shop' link, indicating a secure payment process. There were many other successful responses. Some, for example, included a shopping trolley symbol and/or the word 'PayPal' in their design.

Healthy Logo	Healthy Cooking			
Home 🏠	Forum	Shop 🔒		Forum Login
		Chinese		
		Greek		
		Italian		

Shop links to recipes for food from three nationalities.

The **Forum** is accessed via a login process to make sure only registered users who have agreed to the rules can take part in the discussions.

Forum

Topics	Provided By	Last Post

Images of Vegies	Images of Grains	Images of Fruits

Forum Rules   Privacy   Copyright   Disclaimer

The **Images** of vegies, fruits and grains help users identify with cooking healthy food.

Question 11b.

Marks	0	1	2	3	Average
%	22	19	30	30	**1.7**

Annotations that made clear statements about how links/fonts/images met users' needs received full marks. In the examples above, the design feature being discussed is clearly identified at the beginning of each explanation.

Question 12a.

Marks	0	1	2	Average
%	39	29	32	**1**

Many students explained that the data type was text and as such 10, 11 and 12 'have no place value'. This means only the '1 is compared to 2, 3 and 4'. These students received full marks. Others who stated that the problem arose because the numbers were sorted as text received one mark.

Question 12b.

Marks	0	1	2	3	Average
%	33	22	24	21	**1.4**

Many students suggested that Kelly remove the word 'Chapter' from the list and use it as a heading or label. She could then 'change the data type to number and sort the list'.

Other students suggested Kelly add a leading or spacing zero or format mask so that all the 'number' parts of the data have the same number of characters; for example, 'Chapter01, Chapter02, etc'. Then when Kelly sorted the text data, 'Chapter02 is less than Chapter11'.

Those students who went on to recommend that Kelly should then test her solution by sorting the list and checking that the output was as expected, received full marks.

Question 12c.

Marks	0	1	2	Average
%	40	35	25	0.9

Students who stated that a query needed to be created and correctly wrote the query were awarded full marks. The commonly provided correct answer was: FileFormat = GIF AND FileSize <50