



# VCE Information Technology: IT Applications 2011–2014

## Written examination – November

### Examination specifications

#### Overall conditions

The examination will be sat at a time and date to be set annually by the Victorian Curriculum and Assessment Authority. VCAA examination rules will apply. Details of these rules are published annually in the *VCE and VCAL Administrative Handbook*.

There will be 15 minutes reading time and two hours writing time.

The examination will be marked by a panel appointed by the VCAA.

The examination will contribute 50 per cent to the Study Score.

#### Content

The *VCE Information Technology Study Design 2011–2014* is the document for the development of the examination. The study design includes the Glossary (pages 12 to 15) and the Problem-solving Methodology (pages 16 to 18). Questions will be based on the key knowledge and key skills that underpin all outcomes in Units 3 and 4. The weightings given to each unit and each outcome will be approximately equal across the examination. Aspects of some outcomes that require the use of computers will not be examined, however underpinning knowledge associated with these practical aspects is examinable.

#### Format

All questions in the examination will be compulsory.

The examination will consist of two sections.

Section A – 20 multiple-choice questions worth one mark each.

Section B – short and extended response questions. These may include a variety of item types including short scenarios and questions with multiple parts. Students may also be required to respond in the form of diagrams, completion of flowcharts and tables. Students may be required to respond to stimulus material such as design briefs, case studies, newspaper articles or images. This section will be worth 70 marks.

Examination questions will be presented in a question and answer book. Answers to Section A (multiple choice) will be recorded on a multiple-choice answer sheet. Section B is to be answered in the spaces provided in the question and answer book.

#### Advice

During the 2011–2014 accreditation period for VCE Information Technology: IT Applications, examinations will be prepared according to the examination specifications above. Each examination will conform to these specifications and will test a representative sample of key knowledge and key skills.

The following sample questions are intended to demonstrate how new aspects of Units 3 and 4 of Information Technology: IT Applications may be examined. They do not constitute a full examination paper. Teachers and students should be aware that the terminology used in the examination will be in accordance with definitions provided in the IT Glossary and the Problem-solving Methodology in the study design.

Answers to multiple-choice questions are provided on page 15.

Answers to other questions are not provided.

## Sample questions

### SECTION A – Multiple-choice questions

#### Question 1

Which item of hardware is required for hosting a website in an office?

- A. server
- B. CAT5 cable
- C. networked printer
- D. portable hard drive

#### Question 2

Which type of website would best suit a group of people interested in reading about the daily progress of a traveller?

- A. wiki
- B. blog
- C. forum
- D. chat room

#### Question 3

Sam is writing a quick start guide to support the use of a solution.

Which stage of the problem-solving methodology does this activity belong to?

- A. design
- B. analysis
- C. evaluation
- D. development

#### Question 4

One of the key provisions of the *Charter of Human Rights and Responsibilities Act 2006* (Vic) is

- A. freedom of expression.
- B. regulating commercial email.
- C. limiting the collection of personal information.
- D. monitoring the use of information collected by organisations.

#### Question 5

Which design tool would best represent the planned navigation of a website?

- A. site map
- B. storyboard
- C. screen mockup
- D. entity relationship diagram

### Question 6

A website for a sports team best communicates its team's collective identity using

- A. consistent orientation and spacing.
- B. video footage of successful matches.
- C. club colours, club logos and images of players.
- D. coloured links, performance data and varying font sizes.

### Question 7

At the beginning of each year a junior gym club updates its records. The manager designs a procedure that automatically moves all junior members up into the next age group.

Which one of the following would be a criterion for evaluating the efficiency of this procedure?

- A. Is the procedure easy to use?
- B. Is the procedure button clearly labelled?
- C. Are all members found to be in the correct age group?
- D. Have any competitors been disqualified during competition?

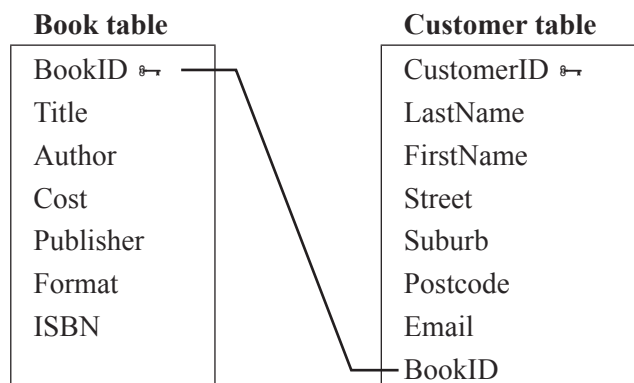
### Question 8

Staff in a graphic art studio recolour images downloaded from the Internet and present them as their own work. Management would best deal with this practice by

- A. pinning a copy of the *Copyright Act 1968* on the staff notice board.
- B. sacking the artists caught using unsourced images from the Internet.
- C. preparing a strategy clarifying the problem and developing procedures for handling copyright material.
- D. preparing a quick reference card which lists the penalties for breaching the *Copyright Act 1968* and identifies well-known artwork which is no longer subject to copyright laws.

### Question 9

The design for a small bookshop's relational database links the BookID in both the Book and Customer tables.



The BookID field in the Customer table is called a

- A. normal key.
- B. foreign key.
- C. primary key.
- D. redundant key.

**SECTION B**

**Question 1**

A design for the Keep Well Diagnosis Online website is shown below. The website is sponsored by pharmaceutical companies, a fitness equipment association and a health food manufacturer. It provides a service where users can enter the symptoms of an illness and get an instant diagnosis. They also receive recommendations on medications, diet and exercise.

<i>Home</i>	<i>Diagnosis</i>	<i>Symptoms</i>	<i>Medication</i>	<i>Diseases</i>
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*Information*

\* Gender  F  M

Age (years)

## *Keep Well Diagnosis Online*

1. *Select your age and gender*
2. *Enter any medications you take*
3. *Select your symptoms*
4. *Confirm your symptoms*
5. *Click the diagnosis button*

*Healthy Eating  
Recommended  
Diet*

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*Keeping Fit  
Recommended  
Exercises*

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*Supplements  
Recommended  
Medication*

*Enter Your Medication*

\* Symptoms

*Symptoms List*

\* required fields

a. Identify the type of data that is input through the use of a radio button.

\_\_\_\_\_

1 mark

The Keep Well Diagnosis Online organisation believes that providing the drop down list for ‘Age’ will help validate the data input by users.

b. Describe how the effectiveness of the drop down list shown in the website could be enhanced.

\_\_\_\_\_

\_\_\_\_\_

2 marks

c. What technique could Keep Well Diagnosis Online use to encourage reluctant users to input personal data into its website?

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1 mark

- d. Explain the benefits to a user of entering personal medical data into a website like Keep Well Diagnosis Online. Give an example to support your answer.

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2 marks

When a user enters the medications they are taking, it is possible to warn them of risks associated with particular combinations of drugs.

- e. Explain how a database can be used to identify these risky combinations.

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2 marks

**Question 2**

Describe one technical feature of a network that is required to host a website that provides video conferencing.

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2 marks

### Question 3

Below is a table from a yacht club's relational database.

Name	Boat Name	Address_Suburb	State	memType	Fees \$	Gender	Boat Storage Fees \$	Total Fees Due \$
Sue Trowsdale	Suzy	21 Mountain Rd Rosebud	VIC	Senior	250.00	F	125.00	375.00
Jon Ross	Wahoo	64 View Rd McCrae	VIC	Junior	140.00	M	–	140.00
Harry Wilson	Victor	35 Shady Ln Rosebud	VIC	Life	–	M	125.00	125.00

- a. Identify one data field that has Boolean data type and explain why it has been used.

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2 marks

- b. Recommend a suitable naming convention for the data fields. Justify your answer.

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2 marks

- c. Describe what would happen when you apply **one** of the First, Second or Third Normal Forms to data in the table. Refer to the table in your answer.

Tick the box to indicate which normal form you are describing.

First  or Second  or Third

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2 marks

- d. Explain how normalisation ensures data integrity.

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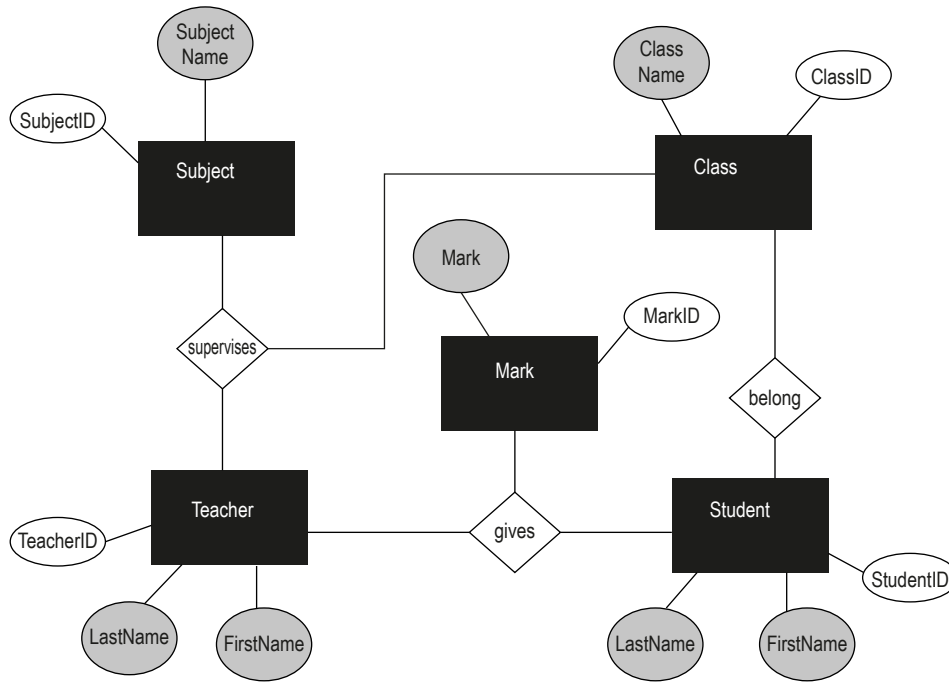
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2 marks

**Question 4**

The entity relationship (ER) diagram below was created to represent relationships in a secondary school’s database.



modified from conceptdraw.com

List the **three** basic elements of entity relationship diagrams and provide an example of each from the diagram.

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3 marks

**Question 5**

A company that sells CDs and music online collects and stores data about its customers in a database. The order form requires a mailing address, delivery address and email address.

a. Describe a technique the company could use to record customers’ orders/purchases via its website.

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2 marks

b. Explain why the company would collect data relating to customers’ orders/purchases.

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1 mark

- c. Recommend **two** techniques which could be used to protect the rights of the customers whose data is being collected and stored.

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2 marks

**Question 6**

Simon has designed the following table in the relational database for members of his ‘Friends of the River’ sailing club.

Field Name	Data Type
↔ LastName	Text
FirstName	Text
Paid?	Boolean
StreetAddress	Text
PostCode	Text
ContactPhone	Text
EmergencyPhone	Text

He has used the LastName field as the primary key.

- a. Explain why this decision will cause problems.

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2 marks

- b. Explain why Simon has used the text data type rather than numeric for the ContactPhone field.

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2 marks

- c. Recommend a data format for displaying the Paid? field. Justify your answer.

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2 marks



**Question 8**

NowKitchens supplies customers with cooking equipment for their homes. The manager, Ms Mitchell, wants to expand the company website by establishing a ‘Members Only’ area that will provide recipes and food storage advice.

- a. State one technique for identifying members that Ms Mitchell could use on the website and describe how she would do this.

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2 marks

Ms Mitchell plans to include in the Members Only area a list of all members, their email addresses and the equipment they have purchased. This data is taken from the details given when cooking equipment is purchased.

- b. Discuss this plan in the context of current legislation.

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4 marks



**Question 10**

Stratospheric Solutions is a chain of stores selling electronic and computer equipment in every Australian state and territory. The owner wants to promote the fact that it is using cloud computing to enhance its image of being a modern business.

- a. State one advantage of Stratospheric Solutions using cloud computing for business communications between different store managers. Give an example to support your answer.

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2 marks

- b. Identify one disadvantage of Stratospheric Solutions using cloud computing in its backup strategy. Give an example to support your answer.

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2 marks

- c. Outline a procedure for the disposal of client data that Stratospheric Solutions could follow when using cloud computing.

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3 marks

**Question 11**

Casey has decided to create a website for an online community of shoe lovers. She would like to communicate with females beyond their teens who love buying all types of shoes and who already own 200 pairs of shoes just like herself.

Casey thinks it is a good idea if users of the website upload photos of themselves wearing their shoes and discuss topics such as favourite shoe brands, shoe shops and where and when they wear their shoes.

- a. Suggest a type of website that Casey could create to best suit the information needs of this online community. Justify your answer.

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3 marks

- b. Describe **two** key design features that would support this type of website.

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2 marks

- c. List **two** social online protocols that would support the exchange of information on Casey’s website.

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2 marks



# Answers to multiple-choice questions

Question	Answer
1	A
2	B
3	D
4	A
5	A
6	C
7	A
8	C
9	B