VCE Information Technology: IT Applications 2011–2015

Written examination – End of year

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). 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 2 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 2011–2015* is the document for the development of the examination. The study design includes the 'Glossary' (pp. 12–15) and the 'Problem-solving methodology' (pp. 16–18).

Questions will be based on the key knowledge and key skills that underpin all outcomes in Units 3 and 4. The weighting 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

The examination will be in the form of a question and answer book.

The examination will comprise two sections.

Section A will be worth 20 marks and will consist of 20 multiple-choice questions each worth 1 mark. Students will be required to answer all questions from Section A on a multiple-choice answer sheet.

Section B will be worth 70 marks and will consist of short- and extended-answer questions. These may include item types such as short scenarios and questions with multiple parts. Students may also be required to respond in the form of diagrams and to complete flowcharts and tables. Students may be required to respond to stimulus material, such as design briefs, case studies, newspaper articles or images.

Students will be required to provide answers to questions in Section B in the spaces allocated in the question and answer book.

All questions will be compulsory. The total marks for the examination will be 90.

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Advice

During the 2011–2015 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 assess 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 VCE 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 'Glossary' and the 'Problem-solving methodology' in the study design.

Answers to multiple-choice questions are provided on page 16.

Answers to other questions are not provided.

The following documents should be referred to in relation to the VCE Information Technology: IT Applications examination.

- *VCE Information Technology Study Design 2011–2015* and the section 'Advice for teachers'
- *VCE Information Technology Assessment Handbook 2011–2015*
- *VCAA Bulletin VCE, VCAL and VET*

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?

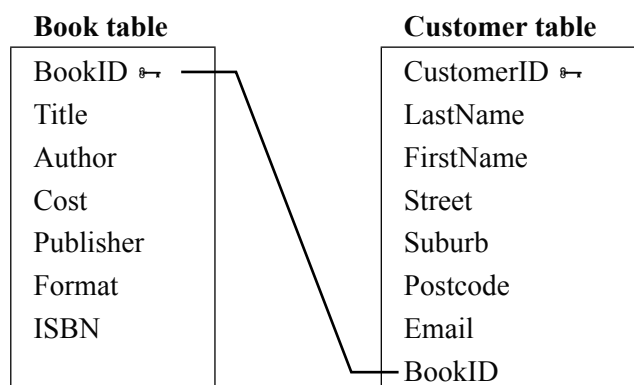**D.** Have any competitors been disqualified during competition?

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.

Book table
- BookID
- Title
- Author
- Cost
- Publisher
- Format
- ISBN

Customer table
- CustomerID
- LastName
- FirstName
- Street
- Suburb
- Postcode
- Email
- BookID

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.

| Home | Diagnosis | Symptoms | Medication | Diseases |

Keep Well Diagnosis Online

Information
* Gender F ○
        M ○
Age (years) [18-25 ▼]

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

Keeping Fit Recommended Exercises

Supplements Recommended Medication

Enter Your Medication

* Symptoms
[Ache ▼]

Symptoms List

[Confirm] [Diagnosis] [Clear]

* 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.

_____

_____

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2 marks

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

_____

_____

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.

_____

_____

2 marks

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

_____

_____

_____

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 ☐

_____

_____

_____

2 marks

d. Explain how normalisation ensures data integrity.

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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.
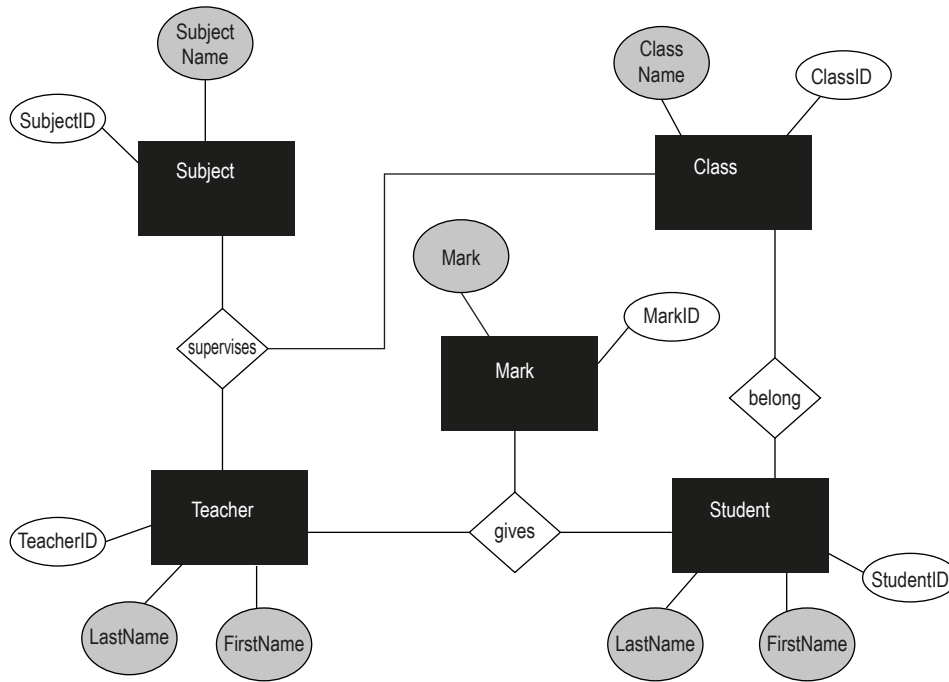
modified from conceptdraw.com

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.

_____

_____

2 marks

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

_____

_____

2 marks

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

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2 marks

Question 7

Victorian sales managers who make tactical decisions about the range and quantity of supermarket products need information about items that are not selling well in some suburbs.

Describe how the use of either a spreadsheet (SS) or a relational database management system (RDBMS) could be used to create a solution for the sales managers that effectively identifies poor selling items and the suburbs. Your answer should consider specific functions, formats and conventions.

Tick the box to indicate which software you are describing.

SS ☐   RDBMS ☐

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8 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 9

An organisation must have access to reliable data and information in order for it to make sound decisions.

Discuss how an organisation can enhance the integrity and security of data and information it stores and communicates, taking into account

- potential threats to stored and communicated data and information
- ways in which an organisation can protect the integrity of data and information it stores and communicates
- legal and ethical considerations.

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8 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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<div align="right">2 marks</div>

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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<div align="right">2 marks</div>

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

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<div align="right">3 marks</div>

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

Question 12

A local library uses a relational database management system (RDBMS) to store data and provide information. Borrowers can retrieve information from the library's online catalogue, check if they have any fines or overdue books and update their contact details.

Discuss the functions and techniques that can be used to provide this information. Describe specific searches, sorts, filters and queries to illustrate your answer.

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6 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