**Victorian Certificate of Education
2012**

STUDENT NUMBER

Letter

Figures

Words

INFORMATION TECHNOLOGY: IT APPLICATIONS

Written examination

Tuesday 13 November 2012

**Reading time: 11.45 am to 12.00 noon (15 minutes)
Writing time: 12.00 noon to 2.00 pm (2 hours)**

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	20	20	20
B	12	12	70
			Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied
- Question and answer book of 22 pages.
- Answer sheet for multiple-choice questions.

Instructions
- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.

- All written responses must be in English.

At the end of the examination
- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions

> ### Instructions for Section A
>
> Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.
>
> Choose the response that is **correct** or that **best answers** the question.
>
> A correct answer scores 1, an incorrect answer scores 0.
>
> Marks will **not** be deducted for incorrect answers.
>
> No marks will be given if more than one answer is completed for any question.

Question 1

The stage of the problem-solving methodology where the solution requirements are determined is

A.   design.

B.   analysis.

C.   evaluation.

D.   development.

Question 2

The best electronic validation technique for ensuring that an online data entry form is complete is

A.   a data type check.

B.   a data range check.

C.   a required field check.

D.   graphic image recognition (CAPTCHA).

Question 3

The manager of a graphic art studio wants to use cloud computing instead of an external hard drive to store image data.

One criterion that can be used to evaluate the effectiveness of this decision would be to ask

A.   is it cheaper to use the cloud than the external hard drive?

B.   is the upload time to the cloud faster than saving to the external hard drive?

C.   do staff find it quicker to retrieve images from the cloud than from the external hard drive?

D.   do the images have the same resolution when retrieved from the cloud as when retrieved from the external hard drive?

Question 4

The best design tool to show the structure of a database solution is

A.   a site map.

B.   a mock-up of the input form.

C.   an entity-relationship (ER) diagram.

D.   an input-process-output (IPO) chart.

Question 5

A relational database management system (RDBMS) developer is creating a new table within a database.

The most efficient name and data type for a field containing phone numbers, such as (03) 456 5667, is

A.   name: cpn, data type: number

B.   name: custPn#, data type: text

C.   name: custPhNum, data type: text

D.   name: customer phone number, data type: number

Question 6

A farmer has hired you to develop a new stock management solution.

During development, to ensure that the new solution does what it is intended to do, you should

A.   enter a lot of data to make sure the stock numbers are correct.

B.   read the quick start guide to make sure it is logical and efficient.

C.   create a set of evaluation criteria to judge if the requirements were met.

D.   check the system in three to six months to make sure it is working as intended.

Question 7

A government school has decided to store all parents' credit card information in a text file on the school's computer system.

The school has a legal obligation to change this information management strategy because

A.   parents might get angry.

B.   human error might occur when the credit card numbers are entered.

C.   sensitive data should be stored safely and text files are too easily read.

D.   expired credit cards may still be in the system, resulting in a lack of data integrity.

Question 8

Barry received a three-monthly report showing that the number of complaints about orders being delivered to the wrong addresses had increased. He decides that all stages of the order delivery process will be completely computerised in three years.

Strategies for evaluating the new solution are best carried out

A.   during testing.

B.   as soon as the solution is in use.

C.   immediately before the solution is in use.

D.   six months after the solution has been in use.

Question 9

The best procedure to dispose of a data file and make it extremely difficult to retrieve is to

A.   delete it.

B.   overwrite it with specialty software.

C.   move it to the trash and empty the trash.

D.   encrypt it with licensed software and save it to the cloud.

Question 10

Drivers are insured for mountain track driving if they pass a special driving course (SDC), have a car with roll bars (RB) and are without any convictions (C) for dangerous driving.

The design for a query to identify drivers who can receive insurance is

A. Insured = SDC or RB and C

B. Insured = SDC and RB and C

C. Insured = SDC or RB and not C

D. Insured = SDC and RB and not C

Question 11

An operating system is designed to

A. provide online help to new users.

B. manage file access and application software.

C. provide user-friendly filenames for shared files.

D. encrypt files that are leaving and entering the network.

Question 12

A text box on a data entry form has this validation rule applied to it: 2999 < Postcode < 4000.

The most suitable data to test the rule is

A. 3336, 3337, 3999

B. 2050, 3050, 4050

C. 2999, 4000, 4001

D. 3000, 3999, 4050

Question 13

A telecommunications company has more than 2000 employees across Australia with 24-hour access to the company intranet. The human resource manager wants to make sure that employees can check their holiday entitlements at any time.

The most efficient method of achieving this would be to

A. email all employees whenever any entitlements change.

B. upload new entitlement information to the home page on the company intranet.

C. send new entitlement information to the relevant employees' company mobile phones.

D. provide each employee with a written copy of their entitlements whenever there is a change.

Question 14

The database table below shows the most popular songs during the decade 2000 to 2010, as voted by an online music community in 2011.

SongID	SongTitle	Artist	Year
1	Halo	Beyoncé	2009
2	Yeah!	Usher	2004
3	Low	Flo Rida	2008
4	How You Remind Me	Nickelback	2001
5	I Gotta Feeling	The Black Eyed Peas	2009
6	No One	Alicia Keys	2007
7	Boom Boom Pow	The Black Eyed Peas	2009
8	Gold Digger	Kanye West	2005
9	Apologize	Timbaland	2007

The query Artist = The Black Eyed Peas OR Year < 2009 will display records

A. 5, 7

B. 1, 5, 7

C. 2, 3, 4, 6, 8, 9

D. 2, 3, 4, 5, 6, 7, 8, 9

Question 15

A non-technical constraint on using company logos for promotions on a website is

A. breach of copyright.

B. the storage capacity of the server.

C. the file format of the company logo.

D. the data and file processing capabilities available to users.

Question 16

Determining the scope of a solution includes

A. identifying the functions the solution has to provide.

B. determining what the solution can and cannot do.

C. identifying the constraints of the solution.

D. planning the appearance of the solution.

Question 17

The efficiency of the information architecture of a website can be measured by

A. the number of clicks required to get to the relevant information.

B. whether all links go to relevant information.

C. the number of different font colours used.

D. the readability of the links.

Question 18

To protect the rights of individuals and organisations that are supplying data on a website, a host company is legally required to include on its website a policy statement regarding

A. shipping and returns.

B. human rights.

C. privacy.

D. spam.

Question 19

A complete disaster recovery strategy involves

A. preparing a backup plan for stored data and determining the cause of the disaster.

B. practising the procedures for shutting down the computer system and recovering data.

C. purchasing preventative equipment and documenting the procedures for managing risk to an organisation's data.

D. undertaking a risk assessment, and documenting and practising the procedures for managing risk to an organisation's data and employees.

Question 20

Developing a prototype website involves

A. conducting tests and recording results.

B. determining what benefits the solution will bring to users.

C. considering the constraints and conditions that need to be met.

D. deciding what measures will be used to judge whether or not the solution requirements have been met.

END OF SECTION A

SECTION B

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                        Instructions for Section B
    Answer all questions in the spaces provided.
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Question 1

An accounting company wants to raise its profile by developing a website that will provide a secure login and allow existing clients to check their own tax returns.

a.   Name one software component that is required to set up the website. Describe its function.

_____

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_____

                                                                                    2 marks

b.   Name one hardware component that is required to host the website. Describe its function.

_____

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                                                                                    2 marks

c.   The company would also like to set up an online community where users can discuss sensitive tax issues.

Explain what should be considered when deciding if the website should be closed or open.

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                                                                                    2 marks

Question 2

Discuss the possible effects on data integrity if an employee does not follow the company's security procedures for shutting down their computer at the end of the day.

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3 marks

Question 3

A teacher records student percentage results on tests and calculates averages, as shown in the table below.

StudentName	Test1	Test2	Test3	Average
Adams	85	78	67	76.66666666
Bunsen	77	56	84	72.33333333
Callas	56	61	45	54
Lee	78	78	78	78
Schmidt	50	60	50	53.33333333

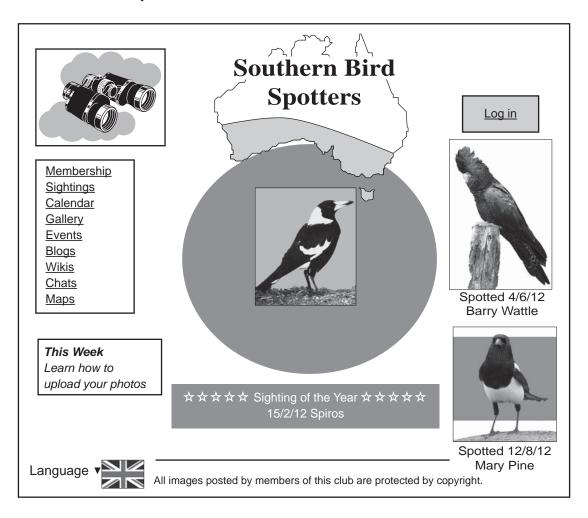Indicate with a tick (✓) one software type that your answers will refer to.

relational database management system (RDBMS) ☐　　　spreadsheet (SS) ☐

a. State how the teacher can list the students from highest average to lowest average.

1 mark

b. Recommend an effective format that the teacher could use to display each student's average mark in a report. Justify your answer.

2 marks

c. List the steps in a procedure that the teacher could use to test the accuracy of the averages provided by the software.

3 marks

TURN OVER

Question 4

Toetappers is an organisation that sells music online.

a. Name a design tool that is used to represent the appearance of a website solution where music can be sold and downloaded.

_____

1 mark

b. Describe a strategy for evaluating the extent to which the website solution meets the organisation's needs.

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2 marks

c. Recommend a type of on-screen user documentation for new users of the website solution. Justify your choice.

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2 marks

d. Name legislation that could apply to this website.

_____

1 mark

Question 5

a. Identify a technique that can be used to acquire data for a voting or polling website.

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1 mark

b. Explain how the website designers could protect the rights of voters.

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2 marks

Question 6

Identify an online social networking website and explain how the needs of its users influence the nature of the website.

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4 marks

Question 7

A mock-up for the Southern Bird Spotters organisation's website is shown below. Members of this organisation observe birds in the temperate southern regions of Australia. The organisation wants to encourage members to use a range of online communication features to present and exchange information, and share a collective identity.

a. Select **two** of the following design elements. On the mock-up, show with a label where these elements have been applied.

contrast   orientation   proportion

2 marks

b. Briefly explain how these two design elements have been used to influence the appearance of the website.

design element 1

_____

_____

design element 2

_____

_____

2 marks

c. Select two of the following design elements and explain how they have been used to enhance the functionality of the website.

appropriateness   navigation   relevance

design element 1

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design element 2

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4 marks

d. Discuss the extent to which this website meets the organisation's aim to encourage members to present and exchange information, and share a collective identity.

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4 marks

Question 8

Ally knows that her best friend Jack, who is a brilliant programmer, has access to other students' passwords. Jack uses these passwords to access the other students' print accounts to print his own assignments on the school network. He has offered to print Ally's assignments. This would save Ally at least $50.

State an ethical dilemma that Ally might have and discuss what she should consider when resolving this issue.

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3 marks

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Question 9

The following data has been collected and stored by an elderly citizens' club. Drivers who transport members of the club are paid an hourly rate according to the number of years they have worked and the type of car they drive – $10 for a small car and $20 for a large car with wheelchair access. You have been asked to set up a database of members and drivers so that the information can be accessed online.

Member name	Member address	Driver name	Years worked	Car rate ($)	Total fee ($)
Mrs Mabel Cane	2 Hill St Richmond	Bill Evans	4	20	80
Mrs Georgia Karis	13 Bay Rd Burnley	Ollie Mantel	3	10	30
Mr Ken Robins	34 Cape Cr Kew	Bill Evans	4	20	80
Ms Anne Olsen	5 Moon St Richmond	Rob Quin	2	10	20
Mr Jack Brunetti	12 Oak St Kew	Sue Alison	1	10	10

Normalise this data and explain how each normal form (1–3) ensures the integrity of data. Use the space below and over the page.

6 marks

TURN OVER

Question 10

A section of a hockey club's membership data that is used to manage training schedules is shown below.

Spreadsheet worksheet

	A	B	C	D	E
	MemberID	**TrainingDay**	**Coach**	**AgeGroup**	**FeePaid**
1	**MemberID**	**TrainingDay**	**Coach**	**AgeGroup**	**FeePaid**
2	Callan01	Wed	Harrison	Senior	450.00
3	Costanza01	Mon	James	Junior	230.00
4	Dillon01	Tues	Wills	Junior	230.00
5	Dijon01	Fri	Harrison	Senior	450.00
6	Dunlop02	Wed	Harrison	Senior	450.00
7	Finlay03	Tues	Wills	Junior	230.00
8	Gonzales02	Mon	James	Junior	230.00
9	Georges04	Wed	Harrison	Senior	450.00
10	Grayson01	Tues	Wills	Junior	230.00
11	Han01	Fri	Harrison	Senior	450.00

Database datasheet

MemberID	**TrainingDay**	**Coach**	**AgeGroup**	**FeePaid**
Callan01	Wed	Harrison	Senior	450.00
Costanza01	Mon	James	Junior	230.00
Dillon01	Tues	Wills	Junior	230.00
Dijon01	Fri	Harrison	Senior	450.00
Dunlop02	Wed	Harrison	Senior	450.00
Finlay03	Tues	Wills	Junior	230.00
Gonzales02	Mon	James	Junior	230.00
Georges04	Wed	Harrison	Senior	450.00
Grayson01	Tues	Wills	Junior	230.00
Han01	Fri	Harrison	Senior	450.00

Indicate with a tick (✓) one software type that your answers will refer to.

relational database management system (RDBMS) ☐   spreadsheet (SS) ☐

a. State how you would list all the coaches who are working on Monday.

_____

_____

_____

1 mark

b. State how you would list all Juniors trained by James.

_____

_____

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_____

2 marks

c. Explain how you would calculate and display the total amount of money paid by Seniors.

_____

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3 marks

Question 11

AppsNow is a company that provides a website where young programmers can advertise and sell their software applications (apps). AppsNow uses cloud computing so that programmers can store their apps and discuss their latest projects online, and receive payments for apps that are sold.

a. Describe how AppsNow can make sure that the apps stored online are safe from hackers.

_____

_____

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2 marks

b. Explain how AppsNow can test that the apps uploaded to the cloud are completely uploaded.

_____

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2 marks

c. Explain one disadvantage of using cloud computing for storing data with AppsNow.

_____

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2 marks

Question 12

Fast Wheels sells eight models of sports bicycles. The manager wants to increase bicycle sales in the new year and reduce costs. He has decided to

• review the sales trends of all models after the first three months

• drop the two models that have sold the least in the first three months

• reward sales staff who sell more than 20 bicycles in the first three months.

Describe how you would use a spreadsheet or a relational database management system to provide the information the manager needs. For each information requirement, make reference to

• data required

• functions to be used

• data to test the solution.

Indicate with a tick (✓) one software type that your answer will refer to.

relational database management system (RDBMS) ☐   spreadsheet (SS) ☐

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SECTION B – Question 12 – continued
TURN OVER

9 marks

END OF QUESTION AND ANSWER BOOK