

LUI

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School code

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School name

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Given name/s

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Family name

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Attach your
barcode ID label here

Book

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of

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books used

External assessment 2024

Question and response book

Digital Solutions

Time allowed

- Perusal time — 15 minutes
- Working time — 120 minutes

General instructions

- Answer all questions in this question and response book.
- Planning paper will not be marked.

Section 1 (10 marks)

- 10 multiple choice questions

Section 2 (36 marks)

- 4 short response questions

Section 3 (20 marks)

- 1 extended response question



DO NOT WRITE ON THIS PAGE
THIS PAGE WILL NOT BE MARKED

Section 1

Instructions

- This section has 10 questions and is worth 10 marks.
- Use a 2B pencil to fill in the A, B, C or D answer bubble completely.
- Choose the best answer for Questions 1–10.
- If you change your mind or make a mistake, use an eraser to remove your response and fill in the new answer bubble completely.

	A	B	C	D
Example:	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	A	B	C	D
1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ensure you have filled an answer bubble for each question.

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Section 2

Instructions

- Write using black or blue pen.
 - If you need more space for a response, use the additional pages at the back of this book.
 - On the additional pages, write the question number you are responding to.
 - Cancel any incorrect response by ruling a single diagonal line through your work.
 - Write the page number of your alternative/additional response, i.e. See page ...
 - If you do not do this, your original response will be marked.
 - This section has four questions and is worth 36 marks.
-

QUESTION 11 (9 marks)

Refer to Stimulus 1 in the stimulus book.

A hospital has installed a state-of-the-art boom gate at the entrance to the staff car park. The boom gate scans and records numberplates and requires drivers to swipe their ID card for access.

- a) Identify three Australian Privacy Principles that apply to the use of personally identifiable or sensitive data and explain how the hospital could implement each principle.

[3 marks]

Australian Privacy Principle: _____

Implementation: _____

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Australian Privacy Principle: _____

Implementation: _____

Australian Privacy Principle: _____

Implementation: _____

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QUESTION 12 (8 marks)

An esports club records player details and results for playing a popular online game. The data is stored in JSON format. The club wants to display the gamer tag of each player, their age and the percentage of games won. A sample of the JSON data is shown.

```
{
  'players': [
    {
      'name': 'Brandon Rioli',
      'gamerTag': 'Madskills',
      'dateOfBirth': '22/12/2007',
      'gamesPlayed': 10,
      'gamesWon': 4
    },
    {
      'name': 'Chloe Pezer',
      'gamerTag': 'PezerGirl',
      'dateOfBirth': '03/04/2007',
      'gamesPlayed': 58,
      'gamesWon': 55
    }
  ]
}
```

Use pseudocode to symbolise the algorithmic statements needed to display the required data.

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QUESTION 13 (9 marks)

Refer to Stimulus 2 in the stimulus book.

A small game development company has approached you to make a simple matching game for young children. They have provided a mock-up of the user interface along with three criteria.

Criteria:

- six unique grocery items are displayed randomly
- four unique shopping list items are generated randomly
- four grocery items match with the generated shopping list items.

You find a code library with the following functions.

Function call	Purpose
<code>GetRandomInt(a, b)</code>	This function takes two integers — a and b — and returns an integer between a and b (inclusive).
<code>ShuffleList(List)</code>	This function takes a list and returns a new list in which the elements have been arranged randomly.
<code>GetRandomFromList(List)</code>	This function takes a list and returns an element that has been selected randomly.

- a) Analyse the user interface mock-up and criteria to select one code function you would use to develop the game. Justify your choice and explain the relationship between the code function, user interface mock-up and criteria.

[3 marks]

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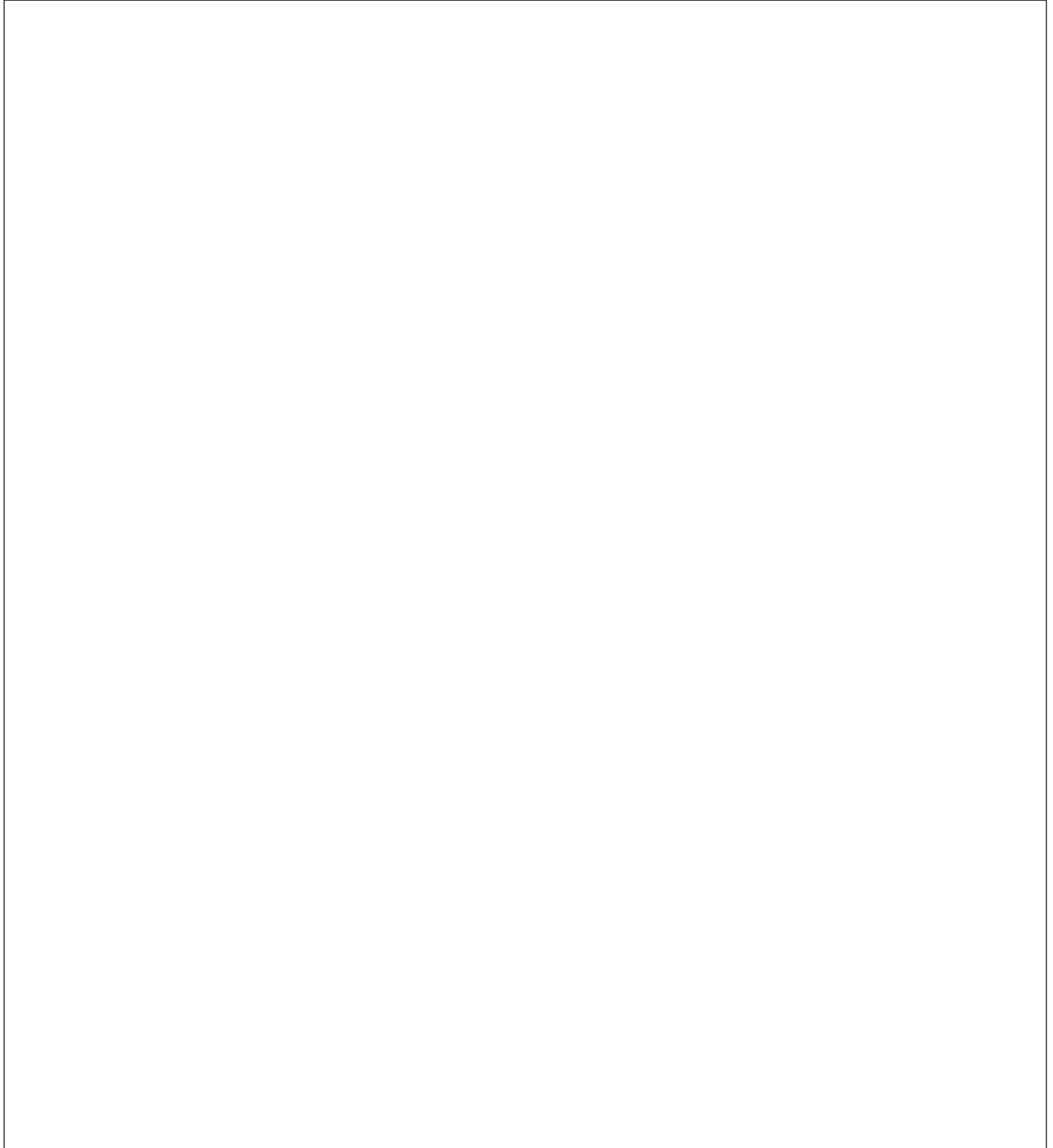
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QUESTION 14 (10 marks)

Two friends want to send each other encrypted messages. They have decided to use a one-time pad encryption algorithm.

Use a data flow diagram to symbolise the data flows required for one friend to send an encrypted message to the other friend. Include external entities, processes and any relevant data stores in your response.



Note: If you make a mistake in the diagram, cancel it by ruling a single diagonal line through your work and use the additional response space at the back of this question and response book.

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Section 3

Instructions

- This section has one question and is worth 20 marks.
-

QUESTION 15 (20 marks)

A local high school is creating a map-based navigation app, catered to new staff and students in Years 7 to 10. Currently, the app does not include a login feature and does not require the user to be on campus to explore the map. The school has prescribed the following criteria to the developers:

User interface

The user interface of the app should display:

- a map of the school grounds only
- the current location of the user on the map
- labelled buildings and classrooms
- a search feature
- a navigation feature to show new staff and students which way to go to get to their classrooms.

Functionality

The app should be able to:

- locate and update the user's location as they move about the campus
- support a custom starting location for when users are off campus
- search for buildings and classrooms
- navigate to a desired location.

- a) Develop a user interface prototype for the navigation app that addresses all prescribed criteria. The prototype should be intended for a mobile tablet user. Use annotations to explain how your user interface addresses all the functionality criteria.

[9 marks]

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Note: If you make a mistake in the diagram, cancel it by ruling a single diagonal line through your work and use the additional response space at the back of this question and response book.

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b) Identify and explain two visual communication principles that could be implemented to ensure a good user experience while using the navigation app.

[4 marks]

Visual communication principle 1: _____

Visual communication principle 2: _____

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d) Recommend a data security strategy for the app and provide an example to justify your response.

[2 marks]

e) Identify two new app features that are possible if user authentication is added and explain the added functionality.

[2 marks]

END OF PAPER

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ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

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ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

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