

# VCE Computing: Informatics 2016–2019

## 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 Computing Study Design 2016–2019* ('Unit 3: Informatics' and 'Unit 4: Informatics') is the document for the development of the examination. The study design includes the sections 'Glossary' (pages 11–13) and 'Units 1–4: Problem-solving methodology' (pages 14–16). All outcomes in 'Unit 3: Informatics' and 'Unit 4: Informatics' will be examined.

All of the key knowledge and skills that underpin the outcomes in Units 3 and 4 are examinable.

#### Format

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

The examination will consist of three sections.

**Section A** will consist of 20 multiple-choice questions worth 1 mark each and will be worth a total of 20 marks.

**Section B** will consist of short-answer questions and will be worth a total of 30 marks.

**Section C** will consist of short-answer and extended-answer questions, including questions with multiple parts. Questions will be based on a case study. Materials relating to the case study for Section C will be presented in a detachable insert in the centrefold. Section C will be worth a total of 50 marks.

All questions will be compulsory. The total marks for the examination will be 100.

Answers to Section A are to be recorded on the answer sheet provided for multiple-choice questions.

Answers to Sections B and C are to be recorded in the spaces provided in the question and answer book.

## Approved materials and equipment

Pens, pencils, highlighters, erasers, sharpeners and rulers

## Relevant references

The following publications should be referred to in relation to the VCE Computing: Informatics examination:

- *VCE Computing Study Design 2016–2019* ('Unit 3: Informatics' and 'Unit 4: Informatics')
- *VCE Computing – Advice for teachers 2016–2019* ('Units 3 and 4 Informatics') (includes assessment advice)
- *Written examination entity-relationship (ER) conventions*
- *VCAA Bulletin*

## Advice

During the 2016–2019 accreditation period for VCE Computing: Informatics, examinations will be prepared according to the examination specifications above. Each examination will conform to these specifications and will test a representative sample of the key knowledge and skills from all outcomes in Units 3 and 4.

Teachers and students should be aware that the terminology used in the examination will be in accordance with the definitions provided in the sections 'Glossary' and 'Units 1–4: Problem-solving methodology', as outlined on pages 11–16 of the study design.

The following sample examination provides an indication of the types of questions teachers and students can expect until the current accreditation period is over.

Answers to multiple-choice questions are provided at the end of the examination.

Answers to other questions are not provided.

STUDENT NUMBER           Letter

## COMPUTING: INFORMATICS

### Written examination

Day Date

Reading time: \*.\* to \*.\* (15 minutes)

Writing time: \*.\* to \*.\* (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	8	8	30
C	11	11	50
			Total 100

- 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 correction fluid/tape.
- No calculator is allowed in this examination.

#### Materials supplied

- Question and answer book of 28 pages.
- Detachable insert containing a case study for Section C in the centrefold.
- Answer sheet for multiple-choice questions.

#### Instructions

- Detach the insert from the centre of this book during reading time.
- 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.
- You may keep the detached insert.

**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

Classifying individual data items into groups based on the characteristics of the data is known as identifying the

- A. data type.
- B. data value.
- C. data structure.
- D. source of data.

#### Question 2

Jim Jones runs a small trucking business. Details of each trip, as shown in the example below, are kept in a logbook that goes with each vehicle.

Vehicle	Begin	End	Distance	Fuel
small truck	Melbourne 13 425 km	Adelaide 14 145 km	720 km	diesel 75 L

Place names, overall distance and fuel-use data are to be stored in a table in a relational database.

Which set of names should be chosen to ensure the most efficient use and maintenance of the database in the future?

- A. Fuel, L, Distance, Begin, End
- B. FuelType, Litres, Distance, Begin, End
- C. Type, Fuel, Distance, BeginLocation, EndLocation
- D. FuelType, Litres, Distance, BeginLocation, EndLocation

#### Question 3

Many organisations prefer to acquire data online through forms rather than use traditional methods, such as the telephone.

Which one of the following is a reason for this preference?

- A. ability to market to customers directly
- B. ability to deliver information to a wider audience
- C. ability to deliver information in different languages
- D. ability to have customers enter their own information and preferences

**Question 4**

When a browser displays a URL beginning with ‘https://’, the browser is indicating that

- A. the connection to the server is not safe.
- B. the browser has successfully connected to the server.
- C. all data sent between the browser and the server is encrypted.
- D. the browser is protected from an attack by a computer virus.

**Question 5**

By referencing a data set’s sources, the integrity of the data is improved because referencing helps to demonstrate the

- A. accuracy of the data.
- B. timeliness of the data.
- C. authenticity of the data.
- D. completeness of the data.

**Question 6**

Which one of the following is a technique used in coding qualitative data?

- A. calculating totals and averages of the data
- B. creating a list of all the opinions and views collected
- C. providing text boxes that allow users to enter comments
- D. classifying opinions and views into broad categories or concepts

Use the following information to answer Questions 7–12.

Samantha would like to purchase a two-bedroom property, but she cannot afford to spend more than \$550 000. To assist her with researching where to buy a property, Samantha has acquired data regarding properties for sale in various suburbs. She downloads the data from a web source and stores the data on her smart phone in a simple flat-file database. A sample of the flat-file database is shown below.

Address	Suburb	Bedrooms	Bathrooms	Price (\$)	Estate agent	Agent contact
4 Grove Road	Aspendale	2	2	450 000	Fenton Estate Agents	John
56 Beach Street	Chelsea	3	1	625 000	Melson Realty	Jane
1 Railway Place	Bonbeach	4	2	1 050 000	Fenton Estate Agents	Jason
4 Honeycomb Crescent	Mordialloc	2	1	510 000	Kings Real Estate	Jin
7 Rose Lane	Chelsea	1	1	395 000	Melson Realty	Jane
67 Magpie Grove	Bonbeach	5	3	1 550 000	Fenton Estate Agents	John

### Question 7

A software function that could be used to easily find all the properties that have two bedrooms is a

- A. query that searches for all properties that are priced below \$550 000.
- B. query that searches for all properties in Aspendale or Mordialloc.
- C. sort that orders the table by the Bedrooms field from highest to lowest.
- D. filter that shows only properties where the Bedrooms field is greater than one.

### Question 8

Samantha would like to focus on a single suburb.

A technique that Samantha could use to find the suburb with the lowest average price and that also meets her requirements would involve using the software to

- A. locate the lowest price of any property listed.
- B. calculate the average price of properties in each suburb.
- C. locate the lowest price of a two-bedroom property in any suburb.
- D. calculate the average price of two-bedroom properties in each suburb.

### Question 9

Which digital system components would Samantha use to acquire and save the data to her smart phone?

- A. wi-fi connection to input the data and a screen to view the data
- B. wi-fi connection to receive the data and a screen to view the data
- C. wi-fi connection to input the data and device memory to store the data
- D. wi-fi connection to receive the data and device memory to store the data

**Question 10**

A security control that can be used to protect the data while it is being communicated to Samantha's smart phone is

- A. backup.
- B. encryption.
- C. a biometric phone lock.
- D. a username and password.

**Question 11**

Samantha would like to store the data in a relational database rather than in the original flat file.

This means that the data would be stored in

- A. two or more linked tables.
- B. a single self-contained table.
- C. two or more independent tables.
- D. a table with related rows next to each other.

**Question 12**

While normalising data for a relational database, Samantha realises that two entities are represented in the sample: PROPERTIES and AGENCIES.

When she creates a table for each entity, she should include the

- A. estate agent field as a foreign key in AGENCIES.
- B. estate agent field as a foreign key in PROPERTIES.
- C. agent contact field as a primary key in AGENCIES.
- D. agent contact field as a foreign key in PROPERTIES.

**Question 13**

An online shoe shop wants to provide an educational service to the public on its existing website. A blog on shoe-related topics, such as selecting the right type of shoe, fun-run training tips, and information on foot and leg injuries, will be written by a physiotherapist and a podiatrist. Customers can post a comment or ask a question relating to the topics covered.

Which one of the following would be an efficient way of evaluating the quality of the educational service provided to customers?

- A. observing customers two weeks after the blog begins operating
- B. surveying customers online three months after the blog begins operating
- C. interviewing the physiotherapist three to six weeks after the blog begins operating
- D. entering dummy data into the 'post a comment' section to find out if comments can be submitted

**Question 14**

In which type of plan would evacuation, backing up and restoration most likely form the scope of the plan?

- A. a data integrity plan
- B. a disaster recovery plan
- C. a network restoration plan
- D. a shut-down and start-up plan

**Question 15**

The design tools that best show how web pages are linked in a website would include a

- A. site map and storyboard.
- B. layout diagram and site map.
- C. context diagram and storyboard.
- D. structure chart and layout diagram.

**Question 16**

Logo (tbs)	<b>HighFliers</b>				
<b>Home</b>	<b>About</b>	<b>Photos</b>	<b>More Info</b>	<b>Blog</b>	<b>Contact</b>
Image (tbs)	HighFliers allows adrenaline junkies to communicate on all matters relating to skydiving, bungee jumping, heli-skiing, base-jumping and wingsuit-flying. Join us today for the adventure of your life.			<b>Members' Login</b>	
				<b>Login:</b> <input type="text"/>	
				<b>Password:</b> <input type="text"/>	
				<a href="#">Forgotten your password?</a>	
				<a href="#">Sign up as a member?</a>	
				<input type="button" value="▼"/> English	
© HighFliers 2016	<a href="#">Privacy Policy</a>	<a href="#">Site Map</a>			

The circled feature in the layout diagram above for a website solution is primarily concerned with the functional design principle known as

- A. usability.
- B. readability.
- C. accessibility.
- D. error tolerance.

**Question 17**

Proofreading and existence checks respectively are examples of

- A. manual and electronic validation.
- B. electronic and electronic validation.
- C. manual and biometric/systematic validation.
- D. electronic and biometric/systematic validation.

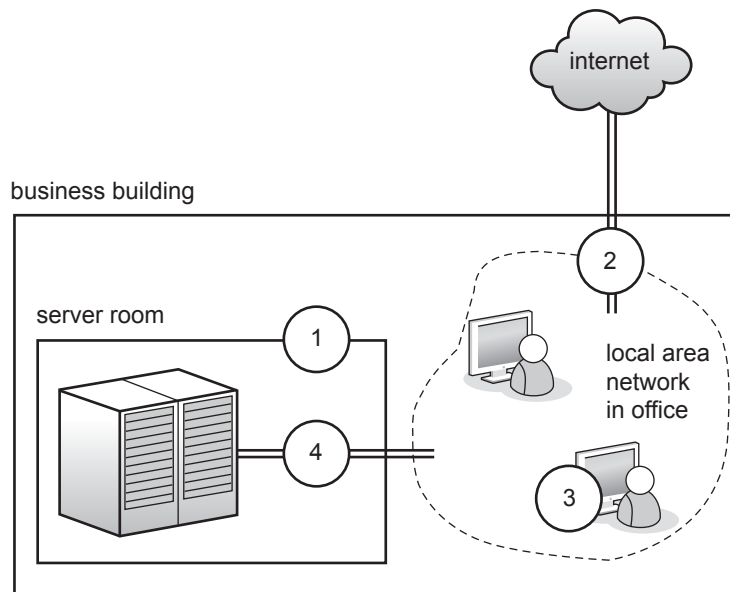
**Question 18**

An employment agency has three offices and stores all its data files in the cloud.

One distinct advantage for all employees of using cloud storage instead of local storage is that the files are

- A. easily shared.
- B. always available.
- C. always up to date.
- D. easily disposed of.



**Question 19**

The diagram above shows the main security controls that a business has in place to protect its data. The most likely security control placed at point ② is a

- A. firewall.
- B. lock and key.
- C. virus scanner.
- D. password requirement.

**Question 20**

To which one of the following do the Australian Privacy Principles, as outlined in the *Privacy Act 1988*, including the *Privacy Amendment (Enhancing Privacy Protection) Act 2012*, **not** apply?

- A. private sector and not-for-profit organisations with an annual turnover of more than \$3 million
- B. Australian and Norfolk Island government agencies
- C. private health service providers
- D. state government agencies


**SECTION B – Short-answer questions**

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

**Question 1 (4 marks)**

Kip has a website selling chicken feed. He has noticed that sales have been declining recently and would like to find out why. Two designs for data collection web pages have been prepared.

**Design A**



**Chicken Feed Store**


**Question 1**  
 How many chickens do you have?  
 (text box)

**Question 2**  
 How much feed did you buy this year?  
 (text box)

**Question 3**  
 Did you like our feed?  
 Yes  No  (radio buttons)

**Question 4**  
 If not, why not?  
 (text box)

**Design B**



**Chicken Feed Store**

**Question 1**  
 How many chickens do you have?  
  (drop-down menu)

**Question 2**  
 How much feed did you buy this year?  
  (drop-down menu)

**Question 3**  
 How would you rate our feed?  
 (slider)  
 1                      5                      10

**Question 4**  
 What % of your feed do you buy from us?  
 (slider)  
 0                      50%                      100%

- a.** State one advantage of each design in meeting Kip’s requirements. 2 marks

Design A \_\_\_\_\_

\_\_\_\_\_

Design B \_\_\_\_\_

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- b.** Which design would be better at generating quantitative data about Kip’s sales? Justify your answer. 2 marks

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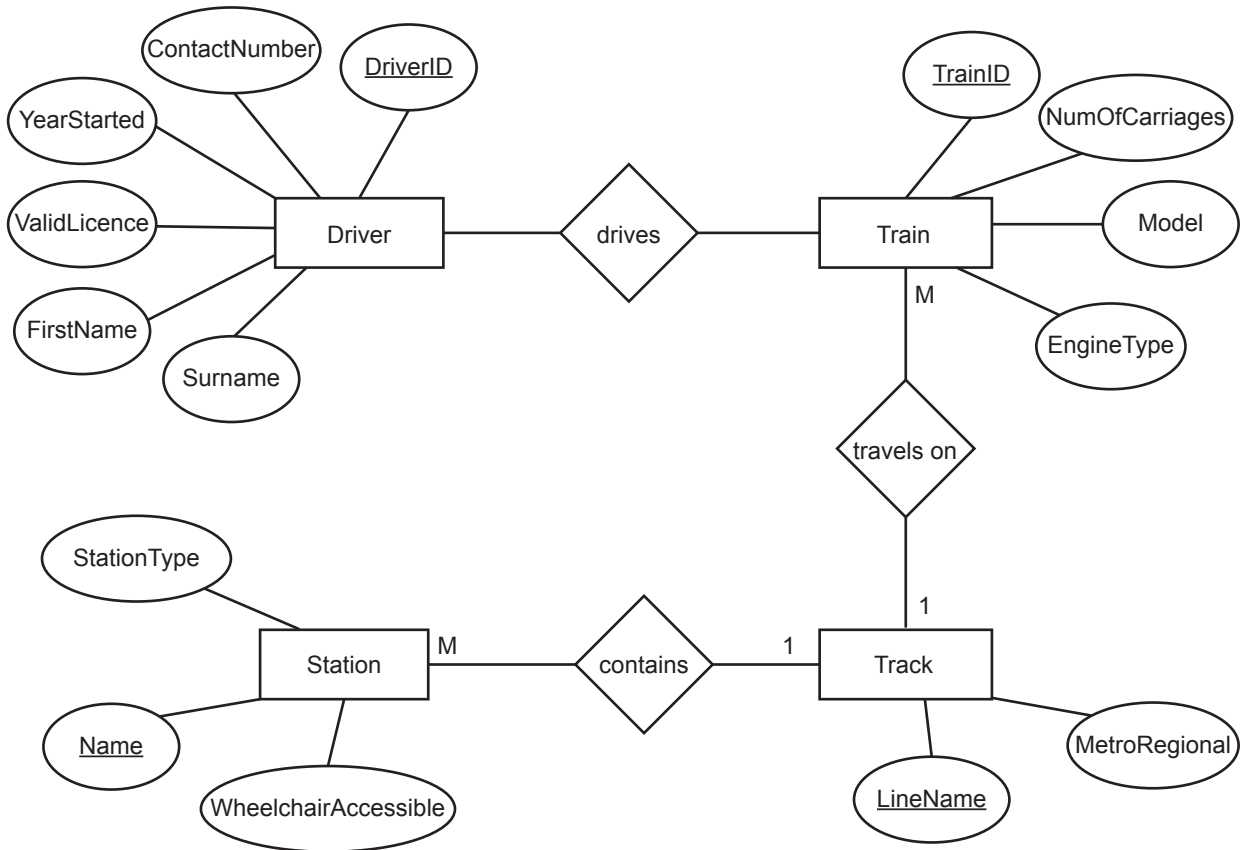
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**Question 2** (6 marks)

A train company operates a fleet of single-driver passenger trains and freight trains. Drivers are allocated to trains on a weekly roster. The trains run on a network of tracks connecting inner-city metropolitan areas as well as regional towns. Both electric passenger trains and diesel freight trains can travel on these tracks, although some regional stations are not available to passengers and, similarly, many of the metropolitan stations are not suitable for freight trains to stop at.

All data concerning the rail network and drivers is managed using a relational database management system (RDBMS). An entity-relationship (ER) diagram for the system is shown below.



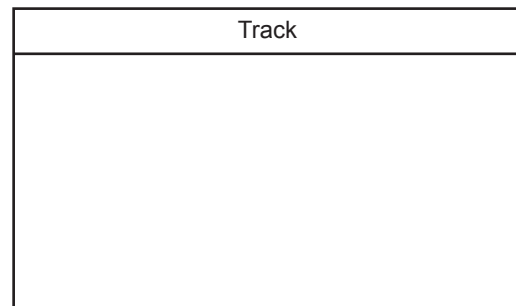
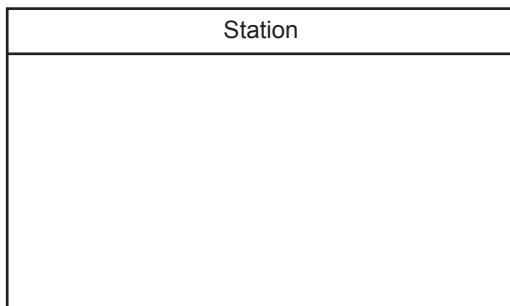
- a. State, in words, the most likely degree or cardinality of the relationship between Driver and Train. 1 mark
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- b. The ER diagram on page 10 uses Chen notation. The section of the ER diagram showing the entities Station and Track is to be redrawn using Crow's foot notation.

Complete the following section of the ER diagram using Crow's foot notation. Show the:

- relationship between the two entities
- attributes of each entity, clearly indicating which are the key attributes
- data type of each attribute.

5 marks



**Question 3** (4 marks)

Melanie is studying the changes in housing in her neighbourhood over time. She has obtained permission from the local council to copy photos that it has in its archives. The photos date back to the early 1900s. Melanie has also walked around the neighbourhood, taking her own photos. She now has more than 300 photos to process.

For this project, Melanie wants to know how many different types of housing existed in each decade from the 1900s (bungalow, two-storey, townhouse, apartment block, and so on). She thinks the best way to do this is to somehow enter the data about different housing into a database or spreadsheet.

- a.** Melanie needs a way of being able to efficiently and accurately enter the types of housing shown in each photo.

Suggest a technique that Melanie could use and explain how it meets her data entry needs. 2 marks

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- b.** Explain how the technique suggested in **part a.** will allow Melanie to obtain a count of different types of housing in each decade. 2 marks

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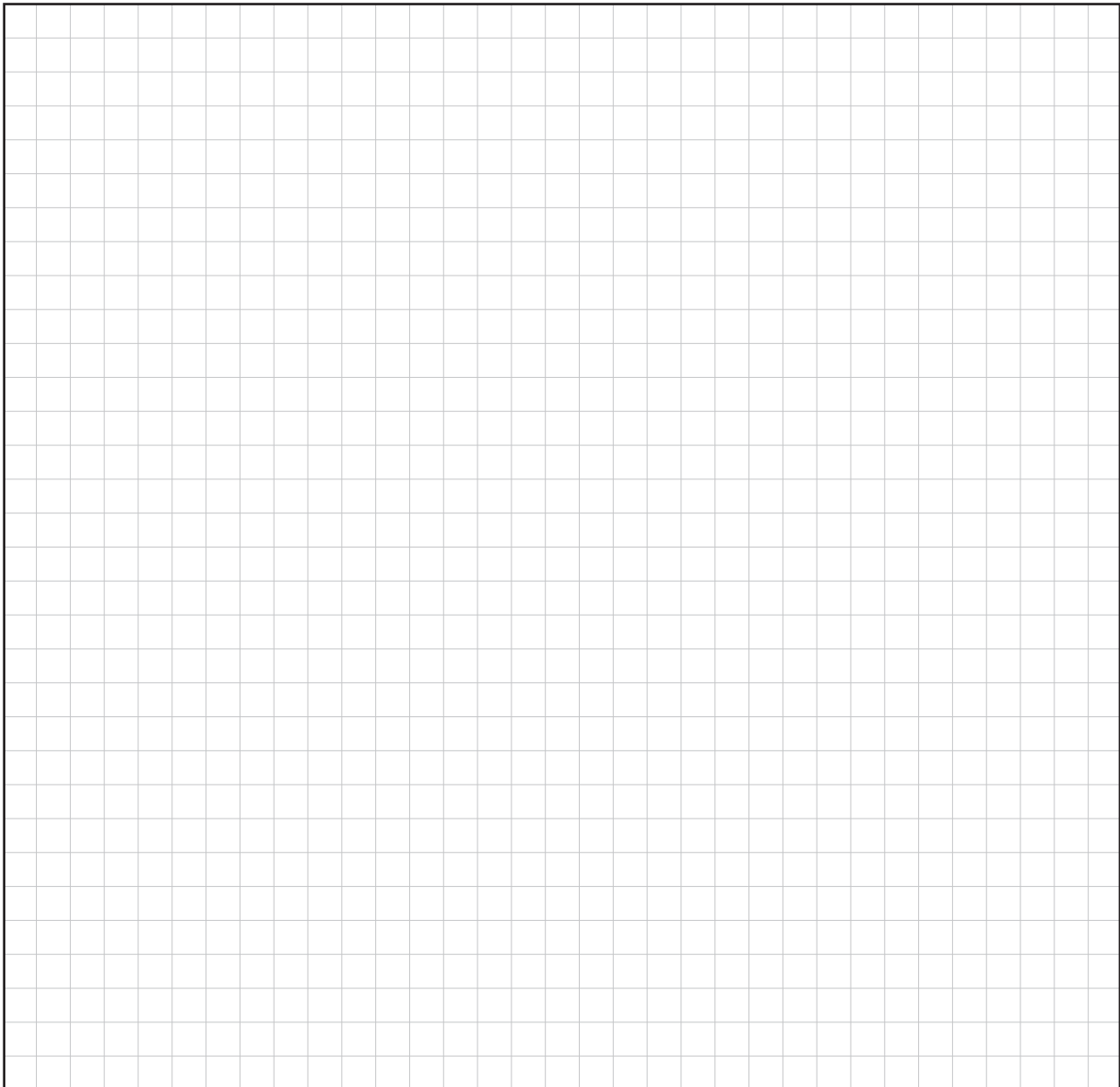
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**Question 4** (6 marks)

Theo, an amateur wildlife photographer, has a large collection of high-quality photos. He would like to post them online so that others can see and learn about different animals and where they live. Theo decides to create a website. For his home page, he would like the following content and functionalities:

- ‘Photo of the week’ – All of Theo’s photos are high-resolution, so the photo on his home page will be a reduced version that visitors can click on to view the high-resolution photo.
  - The ‘photo of the week’ is to be accompanied by text stating what the subject is, where the photo was taken and some technical details about how the photo was taken.
  - The home page will allow visitors to go to four different ‘galleries’ (other pages) by selecting a location, a kind of animal, a type of habitat or a year.
  - The home page will include links to useful photography websites.
- a. Using the grid below, create a mock-up representing the appearance of Theo’s home page. Use annotations to indicate the functionalities described above. 4 marks





- b.** Choose **one** of the functionalities in the brief on page 14 and explain how it could be properly tested. 2 marks

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**Question 5** (2 marks)

‘When providing information to educate a worldwide audience, it is important that the information be presented in a culturally inclusive manner.’

Explain what the term ‘culturally inclusive’ means. In your explanation, provide an example of cultural inclusiveness in the context of providing information.

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**Question 6** (3 marks)

Many organisations, such as banks, require a client to provide two items of data for identification when accessing online accounts.

- a.** Explain **one** advantage of requiring two items of data for identification. 2 marks

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- b.** Suggest **two** items of data for identification that an organisation may require its clients to provide when accessing online accounts. 1 mark

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**Question 7** (2 marks)

A home-owner in Victoria is concerned that her broken back fence will result in her two pedigree dogs escaping. She would like to discuss the repair of the fence with the home-owner on the other side of the fence. However, she does not know who the home-owner is. She speaks to someone who works at the local council and asks for the home-owner's contact details, including their email address.

What should the worker at the local council do? Give reasons.

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**Question 8** (3 marks)

As part of its information management strategy, an organisation periodically reviews the information that it stores.

Explain why the organisation would see periodic reviews as important.

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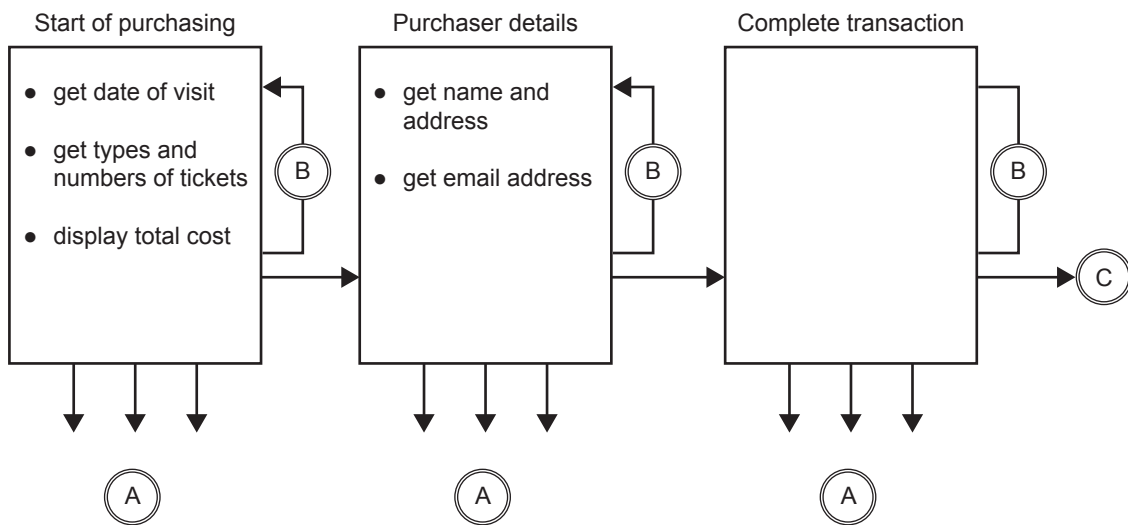
**SECTION C – Case study**

**Instructions for Section C**

Please remove the insert from the centre of this book during reading time.  
 Use the case study provided in the insert to answer the questions in this section.  
 Answer **all** questions in the spaces provided.

**Question 1** (3 marks)

Based on the solution specification and its specific requirements, AWD’s graphic designer has drawn a user flow diagram of the ticket-purchasing transaction.



a. State the condition(s) that would cause the paths labelled B to be followed. 1 mark

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b. List the main actions that the ‘Complete transaction’ page should carry out. 2 marks

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**Question 2** (8 marks)

AWD's database designer has created a sample of the customer data that could be obtained from the web pages. She has placed the data in a table so that it is in first normal form. She has also identified the primary key.

Primary key: Cust\_ID + Ticket\_Type

Cust_ID *	Visitor_Name	Address	Suburb_Town	State	Country	Postcode	Phone	Date_Attending	Ticket_Type *	Ticket_Cost	Number_of_tickets
213	Joy	1 Happy St	Kew	VIC	Australia	3101	(03)98530000	3/7/2016	Adult	30	1
213	Joy	1 Happy St	Kew	VIC	Australia	3101	(03)98530000	3/7/2016	Child	15	2
213	Joy	1 Happy St	Kew	VIC	Australia	3101	(03)98530000	3/7/2016	Conc	20	1
695	Xin	2 Mark Ln	Lalor	VIC	Australia	3075	(03)64640101	21/8/2016	Family	80	1

- a. The database designer sees that the table is not in second normal form. Explain why not. 2 marks

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- b. The database designer begins structuring the data into second normal form, as shown below.

Visitor (primary key: Cust\_ID)

Cust_ID *	Visitor_Name	Address	Suburb_Town	State	Country	Postcode	Phone	Date_Attending
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- i. Identify the primary key for the table 'Ticket types' and show the column headings for this table. 4 marks

Ticket types (primary key: \_\_\_\_\_)

- ii. Show the column heading for the 'Ticket purchases' table. 2 marks

Ticket purchases (primary key: Cust\_ID + Ticket\_Type)

**Question 3** (4 marks)

The new ticket-purchasing system has to collect people's names and emails. Michael has asked AWD's designers to include a built-in automated email system that sends out advertising material to all people in the database.

- a.** Michael's request presents ethical dilemmas for the designers.

Identify **one** ethical dilemma and explain why it is an ethical dilemma.

3 marks

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- b.** Describe how the web page 'purchaser details' (from the user flow diagram on page 18) could be modified to resolve the ethical dilemma stated in **part a.**

1 mark

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**Question 4** (6 marks)

On his study tour, Michael saw that many of the tourist venues he visited used cloud storage as their main backup facility. For UBPP’s ticket-purchasing system, Michael is considering a local backup solution because he would prefer to have full control over the data.

- a. State two important advantages to UBPP of using cloud storage as its backup facility. 2 marks

Advantage 1 \_\_\_\_\_

\_\_\_\_\_

Advantage 2 \_\_\_\_\_

\_\_\_\_\_

- b. With regard to the disposal of data, explain how having a local backup solution gives Michael more control over the data than cloud storage would. 2 marks

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- c. Describe **one** important test that UBPP should carry out to make sure the data backup aspect of its disaster recovery plan will function correctly, regardless of whether it uses cloud storage or local storage. 2 marks

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**Question 5** (2 marks)

State two variables in Sharon’s hypothesis regarding penguin numbers at UBPP.

Variable 1 \_\_\_\_\_

Variable 2 \_\_\_\_\_

**Question 6** (3 marks)

Before Sharon begins her investigation, she thinks it would be a good idea to find out if her hypothesis is reasonable. She decides to check UBPP's last annual report, which has some basic data concerning visitors and breeding success. This is shown in Data set 1 in the insert.

Based on Data set 1, does Sharon's hypothesis seem reasonable? Justify your answer.

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**Question 7** (1 mark)

Sharon is required to appropriately reference the source of the data set that she is using in her online report. Data set 1 was found in UBPP's annual report, which was published by Style Matters in 2015.

Using your preferred method of referencing and the information provided above, write the reference for Data set 1 for Sharon's online report.

Preferred referencing method \_\_\_\_\_

Reference for the source of Data set 1 \_\_\_\_\_



**Question 8** (4 marks)

Data set 2 in the insert shows a sample of the data that Sharon obtained from her online staff survey. When constructing the survey, she was interested in finding out what the impact of humans on the penguins might be. She gave respondents the following list to choose from: noise level (NL), camera flashes (CF), litter (LT), physical interference (PI) and other (O).

Respondents could also say that they did not think there was a problem (NP).

Sharon also thought it would be useful to know where and for how long the respondents had worked at UBPP. She thought that people working in certain areas might be better placed than others to notice issues. Similarly, she thought that the longer people had worked at UBPP, the more likely they would be to notice a trend of any kind.

Describe two software techniques that Sharon could use to identify patterns within the survey's data. In your description, indicate the kind of pattern each technique might help to find.

Technique 1 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Technique 2 \_\_\_\_\_

\_\_\_\_\_

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**Question 9** (8 marks)

Sharon has identified the key tasks, time allocations and dependencies associated with her two-week investigation. She has these listed in a Gantt chart and expects to begin the project on 6 June. Sharon has a full training day on the first Thursday and does not usually work on weekends.

The incomplete Gantt chart is shown below.

Project: Investigation into penguin chick population decline			June																							
Task	Duration (days)	Predecessor	M 6	T 7	W 8	T 9	F 10	S 11	S 12	M 13	T 14	W 15	T 16	F 17	S 18	S 19	M 20	T 21	W 22	T 23	F 24	S 25	S 26			
<b>A</b> Design, prepare and test online staff survey.	1	none	█																							
<b>B</b> Conduct online staff survey.	3	A		█	█	█																				
<b>C</b> Acquire secondary data.	2	A																								
<b>D</b> Online staff survey closes.	0	B																								
<b>E</b> Validate, organise and manipulate the data.	2	C, D																								
<b>F</b> Generate ideas and design the online report.	1	E																								
<b>G</b> Use software to develop visualisations.	2	F																								
<b>H</b> Test and fix errors.	0.5	G																								
<b>I</b> Present visualisations to the board.	0.5	H																								
<b>J</b> Project finishes.	0	I																								


<b>Key</b>	task duration 	dependency 	milestone 
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- a.** On the incomplete Gantt chart on page 24
- i.** draw all durations 2 marks
  - ii.** show all dependencies, as indicated in the predecessor column 2 marks
  - iii.** mark all milestones. 2 marks
- b.** During her investigation, Sharon encountered some unexpected events:
- There were insufficient responses to the online staff survey, so it remained opened for an extra day.
  - Monday, 13 June, was a public holiday and extra crowds were expected. Sharon was required to work in the ticket office and reception for the day, and could not work on her investigation.
- Annotate and adjust the completed Gantt chart on page 24 to reflect these two disruptions. In your annotations, ensure that the new completion date of the project is clearly identified. 2 marks

**Question 10** (8 marks)

Sharon has created two mock-ups to depict the appearance of the first screen of her online report.

**Design 1**

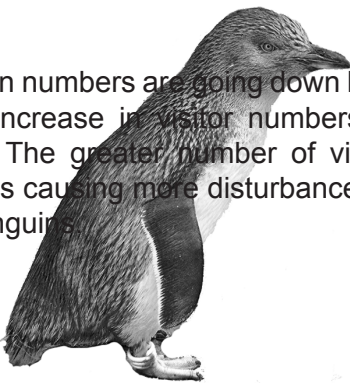


## UDIPTULA BEACH PENGUIN PARK

Home
Project
Survey Results
Charts
Conclusion

Penguin numbers are going down because of an increase in visitor numbers during winter. The greater number of visitors in winter is causing more disturbance among the penguins.

Language ▼

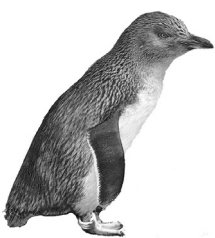


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Source: Susan Flashman/Shutterstock.com (large penguin)

**Design 2**

## UDIPTULA BEACH PENGUIN PARK



Penguin numbers are going down because of an increase in visitor numbers during winter. The greater number of visitors in winter is causing more disturbance among the penguins.

Home	
Project	
Survey Results	
Charts	
Conclusion	

Language ▼

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Source: Susan Flashman/Shutterstock.com (large penguin)

- a. State two criteria Sharon could use to select her preferred design. 2 marks

Criterion 1 \_\_\_\_\_  
\_\_\_\_\_

Criterion 2 \_\_\_\_\_  
\_\_\_\_\_

- b. Select **one** design principle related to the appearance of a solution. Explain your chosen design principle. Your explanation should include one example from each of Design 1 and Design 2. 3 marks

Design principle \_\_\_\_\_

Explanation \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- c. Select one software function from the following:

structure screen layout    create links    incorporate images

Software function \_\_\_\_\_

Referring specifically to the multimodal authoring software you used in Unit 4, Outcome 1, explain how Sharon would use the software function you selected in developing her final product.

3 marks

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Question 11** (3 marks)

Sharon has completed her investigation.

Recommend a strategy that she could use to assess the effectiveness of her project plan in managing her work practices during the investigation.

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**Answers to multiple-choice questions**

<b>Question</b>	<b>Answer</b>
1	A
2	D
3	D
4	C
5	C
6	D
7	C
8	D
9	D
10	B
11	A
12	B
13	B
14	B
15	A
16	C
17	A
18	A
19	A
20	D





## Insert for Section C – Case study

Please remove from the centre of this book during reading time.

### Udiptula Beach Penguin Park

Udiptula Beach is a popular tourist destination on the south-east Victorian coast. Each evening, around 2000 visitors go to the Udiptula Beach Penguin Park (UBPP) to see little penguins returning to their nests. The manager of UBPP is Michael Little.

Over the past few years, the number of visitors has steadily increased and the queues have lengthened, so Michael is looking for quicker ways to admit visitors into the park. As part of his research, Michael went on a study tour of various tourist venues in Australia and the United States. At one particular tourist park in the United States, Michael was amazed at the speed with which visitors were admitted into the park. Before he left Australia, Michael had purchased tickets to this park over the internet and had them sent to his mobile phone. When he arrived there, a barcode on his mobile phone was scanned and he then entered the park.

Michael would like to have a similar system at UBPP. He has hired Adelle Web Design (AWD), a website design business, to create the system. Michael and AWD have agreed on a solution specification. Four of the solution requirements relating to the transaction pages of the website are as follows:

- The purchaser must be able to return to the home page, 'About' page, or 'Contact' page at any time before completing the transaction. This will cancel the transaction.
- For each page of the transaction, if the purchaser has not entered the required information, an error message will appear and they will not be able to proceed to the next stage of the transaction.
- The purchaser will be able to pay only via credit card. When the purchaser has entered their credit card details and confirmed the purchase, the system should return to UBPP's home page.
- The purchaser will be sent the tickets via email.

### Decline in number of penguin chicks

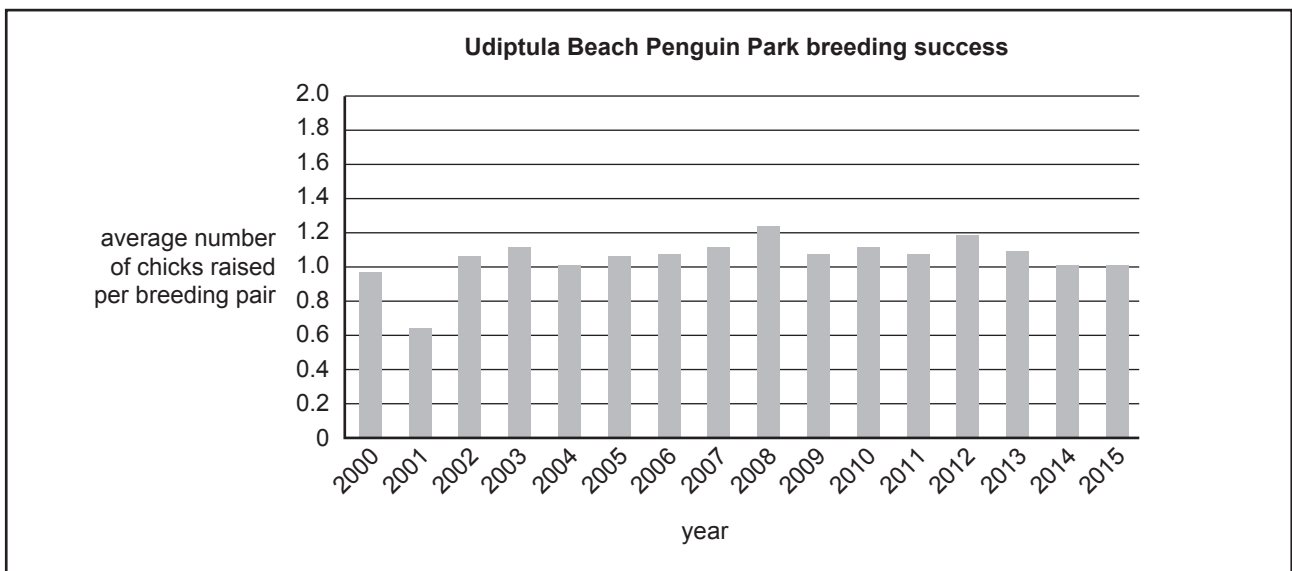
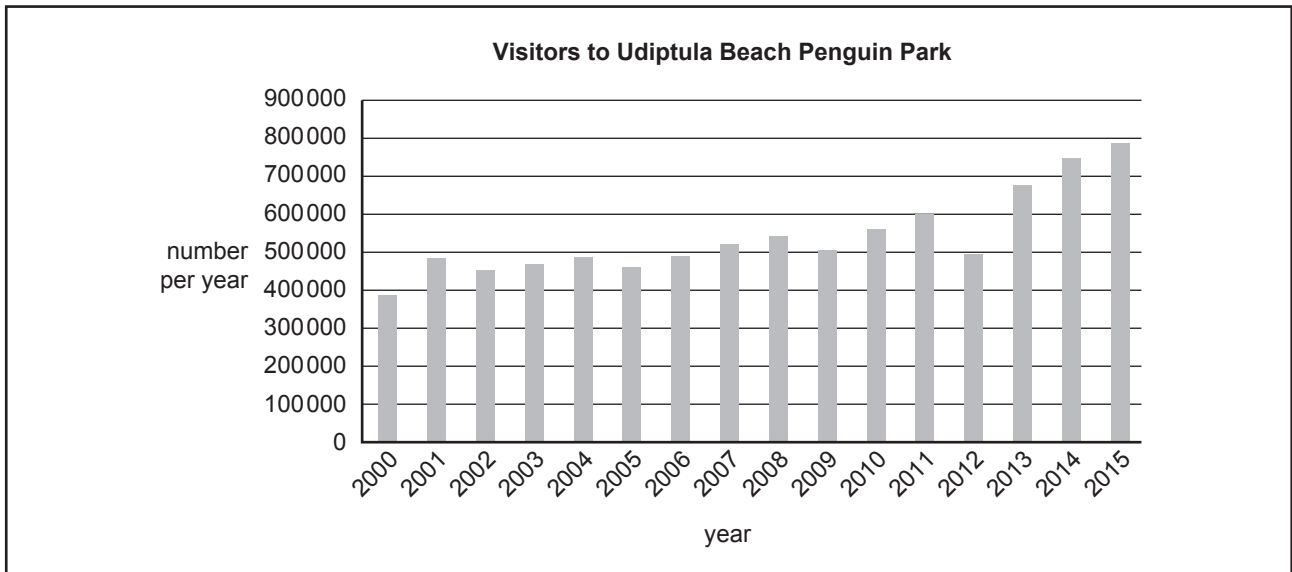
Sharon Chan is the head of Penguin Research at UBPP. While Michael is very pleased about the increasing number of visitors, Sharon has noticed that the number of penguin chicks produced each year has started to decline. She wonders if there is a link between the two trends.

Sharon knows that the breeding season for penguins usually begins in winter, around June. She forms a hypothesis: 'Penguin numbers are going down because of an increase in visitor numbers during winter. The greater number of visitors in winter is disturbing the penguins at an important time for breeding.'

After discussing her concerns with Michael, Sharon is given approval to investigate her hypothesis. Michael gives her until 17 June to complete her investigation, in time for the next meeting of UBPP's management board. He asks her to present a report to the board and to make it suitable for use online so that the public can be informed if Sharon's hypothesis is correct. The deadline gives Sharon a couple of days to prepare her investigation and then she will have two weeks to complete it.

While preparing her investigation, Sharon discusses her hypothesis with some colleagues. One colleague agrees that growing visitor numbers are a concern, but not because of the disturbance that visitors create. He thinks the problem is the increasing amount of litter the visitors bring with them. Hearing this, Sharon thinks a survey of all staff and volunteers is needed to find out what other factors could explain a decline in penguin chick numbers. Since UBPP employs around 200 people and has many volunteers helping with various activities, Sharon decides to use an online survey to collect the opinions of everyone who works at UBPP.

**Data set 1 – Two charts presented in UBPP’s last annual report**



**Data set 2 – A sample taken from staff and volunteer survey responses**

<b>First name</b>	<b>Fam. name</b>	<b>Volunteer?</b>	<b>Dept. now</b>	<b>Dept. 5 yrs ago</b>	<b>Factor</b>	<b>Other</b>
Wie	Mu	no	ranger	same	NP	
Long	Nguyen	yes	science	same	LT	
Kesia	Bah	no	catering	same	NL	
Hung	Yi	no	patrol	same	NL	
Shelly	Cooper	yes	ranger	same	CF	
Naomi	Martin	no	maintenance	catering	NL	
Constance	Evans	yes	ranger	same	O	global warming
Henry	Bian	no	ranger	admin	NL	
Yo	An	no	admin	same	NL	
Teoh	Wei	no	admin	same	NL	
Millicent	Wright	no	science	same	O	pollution
Eddie	Wright	no	science	admin	LT	
Kaoru	Tsukamoto	yes	ranger	admin	CF	
Judith	Wood	no	science	same	LT	
Louisa	Lee	no	admin	same	CF	
Clare	Johnson	no	admin	patrol	LT	

**END OF INSERT**