SAMPLE ASSESSMENT TASKS

COMPUTER SCIENCE
GENERAL YEAR 11

Sample assessment task

Computer Science – General Year 11

Task 5 – Unit 1 – Managing data

Assessment type: Theory test

Conditions
Time for the task: One period in class

Task weighting
5% of the school mark for this pair of units
_____

1. a) List **four (4)** techniques used to ensure that data stored on a personal computer can be
        easily accessed. (4 marks)

    Technique 1: _____

    Technique 2:_____

    Technique 3: _____

    Technique 4: _____

    b) Describe how you could use **one (1)** of the listed data management techniques.
                                                                                    (2 marks)

        _____

        _____

        _____

Question 2 relates to the following screen capture of a database table.

Students_Tbl							
ID ▾	First_Name ▾	Last_Name ▾	Gender ▾	Year_Group ▾	Age ▾	Suburb ▾	Casual_job ▾
1	James	Smith	M	11	16	Joondalup	☑
2	Sue	Harrison	F	10	15	Edgewater	☐
3	Graeme	Jacks	M	12	18	Mindarie	☑
4	Betty	Jones	F	11	16	Clarkson	☑
5	Sam	Abbott	M	11	15	Butler	☑

2. a) Identify the number of records that are in the database table.   (1 mark)

_____

    b) Identify the number of fields that are in the database table.   (1 mark)

_____

    c) Identify the data type for the Casual_job field.   (1 mark)

_____

3. Identify the type of database object represented in the following screen capture.   (1 mark)

Student Information

ID	1	First_Name James	Last_Name Smith
Gender	M	Age 16	Suburb Joondalup
Year_Group	11	Casual_job ☑	

_____

Question 4 relates to the following screen capture from a spreadsheet.

	A	B	C	D	E	F	G	H
1		January	February	March	April	Total		
2	Income							
3	Wages	3000	2500	2700	2500	10700		
4	Allowance	500	500	500	500	2000		
5	Interest	10	10	10	10	40		
6	Total Income	3510	3010	3210	3010	12740		
7								
8	Expenses							
9	Rent	500	500	500	500	2000		
10	Food	200	200	200	200	800		
11	Petrol	150	150	150	150	600		
12	Total Expenses	850	850	850	850	3400		
13								
14	Balance	$ 2,660.00	$ 2,160.00	$ 2,360.00	$ 2,160.00	$ 9,340.00		
15								
16								
17								

Sheet1 Sheet2 Sheet3

4. a) The cell F3 contains the value for total wages for the period January to April. Provide the spreadsheet function for cell F3 to calculate the total wages for the period January to April. (4 marks)

_____

b) The cell B12 contains the total expenses for January. Provide the spreadsheet function for cell B12 to calculate the total expenses for the month of January. (4 marks)

_____

c) The cell B14 contains the balance available for the month of January. Provide the spread sheet formula to determine balance for January. (3 marks)

_____

d) Identify the data type for the following cells: (3 marks)

B14: _____

A12: _____

E5: _____

Question 5 relates to the following table of data from a database.

Country Name	Country Area (SqKm)	Population	Capital City	Continent	Government
Zambia	753,000	10,000,000	Lusaka	Africa	Republic
Brazil	8,511,965	184,101,019	Brasilia	South America	Federative republic
Australia	7,686,850	19,913,114	Canberra	Australia	Democratic, federal-state
China	9,596,960	1,298,847,624	Beijing	Asia	Communist state
Norway	324,220	4,574,560	Oslo	Europe	Constitutional monarchy

5. a) Identify the data type most suitable for each of the following fields: (2 marks)

    Population field: _____

    Government field:_____

    b) Create a simple query that will provide a list of countries with a population greater than 1,000,000 people.   (3 marks)

    _____

6. Create a simple query that will provide a list of countries located in Europe.   (3 marks)

    _____

Total = 32 marks

Marking key for sample assessment task 5 – Unit 1

1. a) List **four (4)** techniques used to ensure that data stored on a personal computer can be easily accessed.

Description	Marks
Correctly lists the data management techniques	1–4 (1 mark each)
Answer could include, but is not limited to:	
• consistent use of files and folders • consistent file naming conventions • use of date and/or time • avoidance of file duplication	

b) Describe how you could use **one (1)** of the listed data management techniques.

Description	Marks
Provides a description of the function of one of these techniques	2
Provides a limited description of the function of one of these techniques	1

2. a) Identify the number of records that are in the database table.

Description	Marks
Correctly identifies the number of fields	1
Answer	
5	

b) Identify the number of fields that are in the database table.

Description	Marks
Correctly identifies the number of records	1
Answer	
7	

c) Identify the data type for the Casual_job field.

Description	Marks
Correctly identifies the data type	1
Answer	
Boolean	

3. Identify the type of database object represented in the following screen capture.

Description	Marks
Correctly identifies the type of database object	1
Answer	
Form	

4. a) The cell F3 contains the value for total wages for the period January to April. Provide the spreadsheet function for cell F3 to calculate the total wages for the period January to April.

Description	Marks
Provides the correct spreadsheet function which	
• starts with an equal sign	1
• includes the function SUM	1
• includes the correct cell range (with a colon or comma)	1
• encloses range in brackets	1
Total	**4**
Answer	
=SUM(B4:E4) Answer may vary depending on version and/or type of spreadsheet software.	

b) The cell B12 contains the total expenses for January. Provide the spreadsheet function, in cell B12 to calculate the total expenses for January.

Description	Marks
Provides the correct spreadsheet function which	
• starts with an equal sign	1
• includes the function SUM	1
• includes the correct cell range (with a colon or comma)	1
• encloses range in brackets	1
Total	**4**
Answer	
= SUM(B9:D11) Answer may vary depending on version and/or type of spreadsheet software.	

c) The cell B14 contains the balance available for the month of January. Provide the spreadsheet formula to determine balance for January.

Description	Marks
Provides the correct spreadsheet formula which	
• starts with an equal sign	1
• includes the cell B6 and B10	1
• includes the minus (-) operator	1
Total	**3**
Answer	
=B6-B12 Answer may vary depending on version and/or type of spreadsheet software.	

d) Identify the data type for the following fields:
B14; A12; E5

Description	Marks
Identifies the correct data type	1–3 (1 mark for each data type)
Answer	
B14: Currency A12: Text E5: Number	

5. a) Identifies the data type most suitable for the:
        Population field
        Government field

Description	Marks
Identifies the correct data type	1–2 (1 mark for each data type)
Answer	
Population field: Number Government field: Text	

    b) Create a simple query that will provide a list of countries with a population greater than 1,000,000 people.

Provides the correct query which includes the following elements: • Population • A greater than sign • 1,000,000	1–3 (1 mark for each element)
Answer	
Population > 1,000,000	

6. Create a simple query that will provide a list of countries located in Europe.

Description	Marks
Provides the correct query which includes the following elements: • Continent • An equals sign • Europe	1–3 (1 mark for each element)
Answer	
Continent = Europe	

Sample assessment task

Computer Science – General Year 11

Task 4 – Unit 1 – Spreadsheets

Assessment type: Practical test

Conditions
Time for the task: 50 minutes

Task weighting
4% of the school mark for this pair of units.
_____

The screen capture below provides the data you are to use for this test.

	A	B	C	D
1	**Sales for January**			
2	Item	Number sold	Price each sold	Value of sales ($)
3	Vacuum cleaners	100	$150.00	
4	Toasters	200	$40.00	
5	Kettles	150	$65.00	
6				
7			Total Value of sales ($)	

Create a spreadsheet file, and save the file with the file name CSCspreadsheet_test _*yourname.*
At the end of this test you are required to submit a digital copy of the finished spreadsheet via email to your teacher.

1. Enter into your spreadsheet the data as shown in the screen capture above. Ensure that you enter all text and data into the same cells as shown. (4 marks)

2. Apply the following formatting to the spreadsheet:
    a) centre alignment to cells B2, C2, D2 and C7 (4 marks)
    b) bold the text in cells A1 and C7 (2 marks)
    c) decimal formatting to cells C3, C4 and C5 (3 marks)
    d) borders around each cell from A2 to D7 (1 mark)

3. Apply the following formatting to the spreadsheet:
    a) merge and centre the heading for the spreadsheet between cells A1 and D1 (1 mark)
    b) increase the font size of the heading to 18 points (1 mark)
    c) change the font typeface to a different font from the default one on the computer you are using. (1 mark)

4. Create a formula in cell D3 that will multiply the number of vacuum cleaners sold in January by the price of each vacuum cleaner. (3 marks)

5. Copy the formula in cell D3 into cells D4 and D5. (2 marks)

6. Create a function in cell D7 that will add the value of sales for the three items to obtain the total value of sales for January. (4 marks)

7. Create a pie chart showing the number sold for each item and include the item name in the legend. Your pie chart should look like the one below. (3 marks)
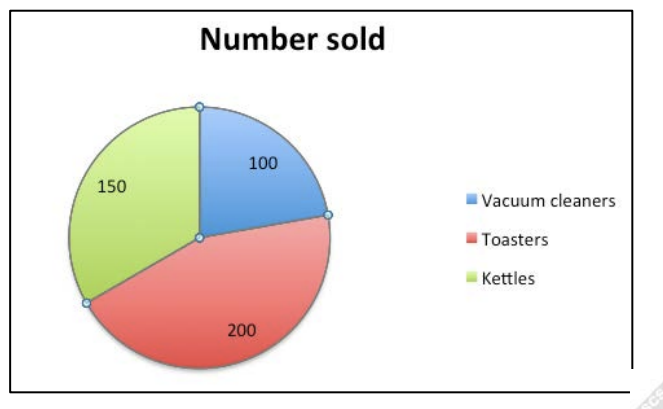
8. a) Copy all the data to a new sheet in your spreadsheet: (2 marks)

    b) Rename the original spreadsheet sheet with the name 'Original SS' and rename the second spreadsheet sheet with the name 'sorted SS'. (2 marks)

    The tabs on your spreadsheet should look like those shown below.
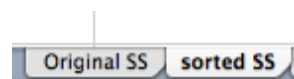
    c) In the 'sort SS' sheet, sort the table of data so that the value of sales figures is in ascending order. Your answer should look the same as the following screenshot. (2 marks)

	A	B	C	D
1	Sales for January			
2	Item	Number sold	Price each sold	Value of sales ($)
3	Toasters	200	$40.00	$8,000.00
4	Kettles	150	$65.00	$9,750.00
5	Vacuum cleaners	100	$150.00	$15,000.00
6				
7			Total Value of sales ($)	$32,750.00
8				

Total = 35 marks

Marking key for sample assessment task 4 – Unit 1

1. Enter into your spreadsheet the data as shown in the screen capture above. Ensure that you enter all text and data into the same cells as shown.

Description	Marks
All text and numbers are entered into the correct cells	2
Some of the text and numbers are entered into the correct cells	1
Subtotal	**2**
The spelling of text is the same as the example	1
The numbers are entered correctly	1
Subtotal	**2**
Total	**4**

2. Apply the following formatting to the spreadsheet:
    a) centre alignment to cells B2, C2, D2 and C7

Description	Marks
Text is centre aligned in each of the required cells	1–4 (1 mark each)

    b) bold the text in cells A1 and C7

Description	Marks
Text in each cell is bold	1–2 (1 mark each)

    c) decimal formatting to cells C3, C4 and C5

Description	Marks
The number in each cell has been formatted to decimal	1–3 (1 mark each)

    d) borders around each cell from A2 to D7.

Description	Marks
A border is created for the cell range A2 to D7	1

3. Apply the following formatting to the spreadsheet:
    a) merge and centre the heading for the spreadsheet between cells A1 and D1

Description	Marks
The heading has been correctly merged and centred	1

    b) increase the font size of the heading to 18 points

Description	Marks
The heading has been correctly changed	1

    c) change the font typeface to a different font from the default one on the computer you are using.

Description	Marks
The default font typeface has been correctly changed to another font	1

4. Create a formula in cell D3 that will multiply the number of vacuum cleaners sold in January by the price of each vacuum cleaner.

Description	Marks
Provides the correct spreadsheet formula which:	
• starts with a =	1
• includes the cells B3 and C3	1
• includes the operator *	1
Total	**3**
Answer	
=B3*C3	

5. Copy the formula in cell D3 into cells D4 and D5.

Description	Marks
Correctly copies the formula in cell D3 to cell D4	1
Correctly copies the formula in D3 to D5	1
Total	**2**
Answer	
The formula in cell D4 should read =B4*C4 The formula in cell D5 should read =B5*C5 Note: If SUM was included in cell D3 and this error is copied into cells D4 and D5, the mark should be awarded, as this question is testing whether students can copy a formula from one cell to another cell.	

6. Create a function in cell D7 that will add the value of sales for the three items to obtain the total value of sales for January.

Description	Marks
Provides the correct spreadsheet function which:	
• starts with an equal sign	1
• includes the function SUM	1
• includes the correct range of cells (with a comma or a colon)	1
• encloses range in brackets	1
Total	**4**
Answer	
=SUM(D3:D5) Note: Answer may vary depending upon the type of spreadsheet program available	

7. Create a pie chart showing the number sold for each item and the item name in the legend.

Description	Marks
Creates the pie chart	1–3
Answer	
The pie chart should include: • an accurate legend • a title • display the number sold for each item	

8.   a)   Copy all the data to a new sheet in your spreadsheet

Description	Marks
Correctly copies the data to the second sheet	1
Original format is maintained	1
Total	**2**

b)   Rename the original spreadsheet sheet with the name 'Original SS' and the second spreadsheet sheet with the name 'sorted SS'.

Description	Marks
Correctly renames the original sheet and the new sheet	1–2

c)   In the 'sorted SS' sheet, sort the table of data so that the value of sales figures is in ascending order. Your answer should look the same as the following screenshot.

	A	B	C	D
1	Sales for January			
2	Item	Number sold	Price each sold	Value of sales ($)
3	Toasters	200	$40.00	$8,000.00
4	Kettles	150	$65.00	$9,750.00
5	Vacuum cleaners	100	$150.00	$15,000.00
6				
7			Total Value of sales ($)	$32,750.00
8				

Description	Marks
Correctly sorts all columns based on the value of sales data	2
Correctly sorts the value of sales column from lowest to highest	1

Sample assessment task

Computer Science – General Year 11

Task 9 – Unit 2 – Game creation

Assessment type: Project

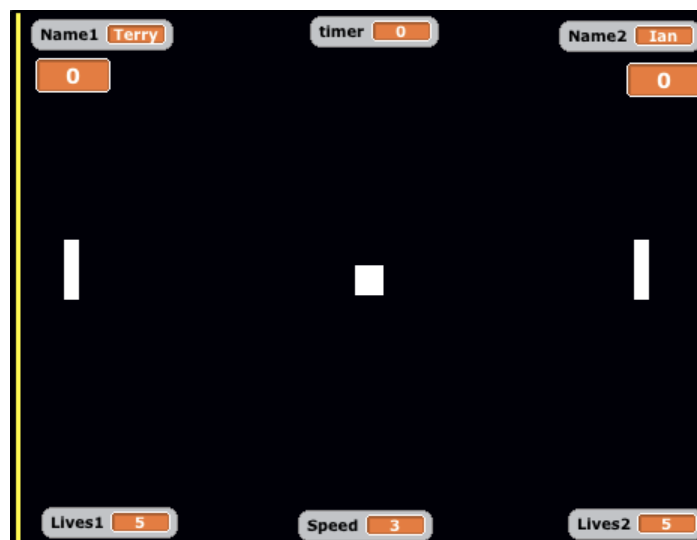**Conditions**
Period allowed for completion of the task: 3 weeks

Task weighting
15% of the school mark for this pair of units
_____

Scenario
One of the earliest computer games developed was 'Pong'. The game required two players to hit a ball with a bat, back and forth across the screen, until one player missed the ball.

The original screen for Pong was similar to the one below.

Your task is to create a new version of the Pong game, using a programming environment, such as Scratch.

Your version of the game should apply the following rules or conditions:
- allow two people to play against each other, with a bat on each side of the screen that can move up and down
- the left side bat should be operated using the 'A' and 'Z' keys
- the right hand bat should be operated using the 'K' and 'M' keys
- keep a score for each player
- the game ends when either player misses the ball **five (5)** times
- the ball should increase speed slightly as the game continues
- include sounds and/or music

Journal **(8 marks)**

Create a time plan that will ensure that you can complete the planning, creation and evaluation of your game within the **three (3)** weeks provided. For each class, identify what you do achieve and why you did or did not achieve your target.

Date / Period number	What I need to achieve in this class	What I did achieve in this class	Why I did or did not achieve my target(s)

Part 1 – Programming considerations **(15 marks)**

Create an IPO chart for your computer game, indicating the inputs, processes and outputs for your game.

For example:

Input

- The user inputs to the program, for example:
  - Player 1 name

Processes

- Processes that will occur while the program is running, for example:
  - left bat moves 30 points up when the user presses the A key
- Variables that will change during the program, for example:
  - the number of lives will decease when the player misses a ball

Outputs

- Feedback that the user will receive at the start, during and at the end of the program, for example:
  - sound when the ball hits or misses a bat

Inputs	Processes	Outputs

(9 marks)

Create a plan for your computer game, outlining how each of the following components will be included in the program for your computer game

- sound and music (e.g. when the ball hits or misses a bat)
- special effects (e.g. speed of ball increases as game time increases)
- images (e.g. use of sprites)
- variables (e.g. player name)
- control structures (selection and iteration) (6 marks)

Part 2 – Product development (35 marks)

Create your computer game, using a programming environment, such as Scratch. Make sure that you refer to your time plan, the IPO chart and all of the components of your plan for your computer game.

Your computer game will be assessed on:

- use of sound and music (4 marks)
- use of special effects (4 marks)
- use of original images (4 marks)
- use of variables (3 marks)
- use of the selection control structure (6 marks)
- use of iteration control structure (6 marks)
- whether the game is complete, functional, without syntactic and logical errors and well-designed (8 marks)

Part 3 – Evaluation (8 marks)

Once you have finished creating your computer game, you need to evaluate its effectiveness and identify how your game could be improved. To do this, answer the following questions:

1. How does your computer game match your IPO chart? (2 marks)
2. How effective is your computer game as a software solution? (3 marks)
3. How would you improve the process that you followed to develop your computer game? (3 marks)

Total = 66 marks

Marking key for sample assessment task – Unit 2

Description	Marks
Journal	
Creates and maintains a time plan that allows for potential interruptions, with realistic achievement targets, providing appropriate achievement statements for each of the planning, development and evaluation phases of the game.	7–8
Creates and maintains a time plan, with realistic achievement targets, providing appropriate achievement statements for each of the planning, development and evaluation phases of the game	5–6
Creates and maintains a time plan, with incomplete achievement statements for each the planning, development and evaluation phases of the game	3–4
Creates and partly maintains a time plan, providing incomplete achievement statements for the planning, development and evaluation phases of the game.	1–2
Total for Journal	**8**
Part 1 – Programming considerations	
IPO chart	
Correctly identifies at least three appropriate: • inputs • processes • outputs	1–3 1–3 1–3
Subtotal	**9**
Plan for the computer game outlines how each of the components will be incorporated: • sound and music (1) • special effects (1) • images (1) • variables (1) • control structures (selection and iteration) (2)	1–6
Subtotal	**6**
Total for Part 1 – Programming considerations	**15**
Part 2 – Product development	
Appropriate use of sound and music	1–4
Appropriate use of special effects	1–4
Appropriate use of original images	1–4
Subtotal	**12**
Use of variables	
• correctly applies a range of variable types with relevant names • uses a range of variables • limited use of variables	3 2 1
Subtotal	**3**
Use of the selection control structure	
• demonstrates an appropriate use of a range of selection control structures throughout the program	5–6
• demonstrates an appropriate use of a limited range of selection control structures throughout the program	3–4
• demonstrates limited and inappropriate use of selection control structures throughout the program	1–2
Subtotal	**6**
Use of iteration control structure	
• demonstrates an appropriate use of a range of control structures throughout the program	5–6
• demonstrates an appropriate use of a limited range of control structures throughout the program	3–4
• demonstrates an limited and inappropriate use of control structures throughout the program	1–2
Subtotal	**6**

Part 2 – Product development	
Completeness and functionality of game	
The game is	
• complete, functional, without syntactic and logical errors and well-designed	7–8
• partially complete, functional, without syntactic and logical errors and well-designed	5–6
• partially complete, functional, with syntactic and logical errors and poorly designed	3–4
• partially complete, non-functional and poorly designed	1–2
Subtotal	**8**
Total for Part 2 – Product development	**35**
Part 3 – Evaluation	
Matching the IPO chart	
Provides a statement identifying how the final product matches the IPO chart	1–2
Effectiveness of completed game as a software solution	
Provides an appropriate explanation of the effectiveness of the game as a software solution	1–3
Program improvements	
Provides an appropriate description of potential improvements to the process used to develop the game	1–3
Total for Part 3 – Evaluation	**8**

Total for Journal	8
Total for Part 1 – Programming considerations	15
Total for Part 2 – Product development	35
Total for Part 3 – Evaluation	8
Task Total	**66**