SAMPLE ASSESSMENT TASKS

COMPUTER SCIENCE
GENERAL YEAR 12

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Sample assessment task

Computer Science - General Year 12

Task 1 - Unit 3

Assessment type: Project

Conditions

Period allowed for completion of the task: two weeks in class

Task weighting

10% of the school mark for this pair of units

Scenario

The Ballajura Independent Supermarket is a family-owned and run business. The owners are currently considering updating their standalone computers. They have hired a system analyst to provide some direction about the updating of the technology for the business.

Following a preliminary study, the consultant produced the following analysis of the business.

- The supermarket is split into a number of departments, such as fruit and veg, butcher, bakery, frozen foods etc. Each department has a manager who is responsible for all reordering of stock.
 Each department sells an assortment of goods.
- At the end of each day, the manager receives from each department a list of stock which is running low. The manager analyses the low stock list and sorts the items into supplier lists. The lists are sent through to the administration department where the order forms are completed and emailed to the specific supplier who, in turn, emails back a confirmation of the order. When the ordered items are delivered a few hours later, someone from the administration department checks the invoice/delivery slip against the order and then updates the stock lists.
- Employees are paid every Thursday, based on the hours that they worked during the previous Monday to Sunday. The wages are calculated manually. All employees work a set number of hours, plus they also have the opportunity to work overtime on the weekends and on public holidays.
- The business is planning to open a small 'cash only' café selling 'Burgers, made to order' and cold drinks.

The system analyst also described the following steps within the ordering system:

- At the end of each day, the manager receives from each department a list of stock which is running low. The manager records the items of stock that need to be replenished into supplier lists.
- The lists are sent through to the administration department where the order forms are filled out and faxed to the specific supplier who, in turn, provides a confirmation of the order.
- When the ordered items are delivered, someone from the administration department updates the stock lists.

Systems analysis

- Describe the system development methodology that the systems analyst could use to investigate and implement an Information Technology solution for the Ballajura Independent Supermarket. (2 marks)
- 2. (a) List and describe **three** methods that the system analyst would use to collect information about how the Ballajura Independent Supermarket is operating. (9 marks)
 - (b) Select **one** of the methods listed for 2(a) and explain why that method would be suitable to collect information on the operation of the Ballajura Independent Supermarket.

(2 marks)

3. Explain why a data flow is labelled using a noun.

(2 marks)

4. Create a Context Diagram for the Ballajura Independent Supermarket.

(5 marks)

- 5. The systems analyst has recommended that the owners of the Ballajura Independent Supermarket replace their office computer system. You are to develop a report that documents your research into **two** different computer systems for the Ballajura Independent Supermarket. Your report will need to recommend **one** system that meets the requirements of the Ballajura Independent Supermarket. Your report should include the following sections:
 - Statement of specification

(2 marks)

• Hardware (input, output, processing and storage)

(8 marks)

• Software (operating system and application software)

(4 marks)

• Final recommendation of a computer system.

(3 marks)

6. Create an ICT code of conduct, suitable for the employees of the Ballajura Independent Supermarket. (6 marks)

Total = 43 marks

Marking key for sample assessment task 1 – Unit 1

 Describe the system development methodology that the systems analyst would use to investigate and implement an Information Technology solution for the Ballajura Independent Supermarket.

Description	Marks
Provides a description of the system development methodology	2
Provides a limited description of the system development methodology	1
Answer could include, but is not limited to:	
The system development methodology may be either 'Prototyping' or the 'System	ns development life
cycle approach', depending upon the rationale provided within the description.	

2. (a) List and describe **three** methods that the system analyst would use to collect information about how the Ballajura Independent Supermarket is operating.

Description		Marks
Correctly lists three data collection mathedologies		1–3
Correctly lists three data collection methodologies		(1 mark each)
	Subtotal	3
Provides a description of the data collection methodology		2
Provides a description of the data collection methodology		(per method)
Dravidas a limited description of the data collection mathedalogy.		1
Provides a limited description of the data collection methodology		(per method)
	Subtotal	6
	Total	9
Anguar could include but is not limited to:		

Answer could include, but is not limited to:

- Questionnaires: documents with questions completed and returned by a person who works in the business or a person who engages with the business
- Interviews: questions responded to by a person who works in the business or a person who engages with the business
- Observations: a record of the business made through observation
- Document analysis: a review of documents used within the system
- (b) Select **one** of the methods listed for 2(a) and explain why that method would be suitable to collect information of the operation of the Ballajura Independent Supermarket.

Marks
2
1

Answer could include, but is not limited to:

- Questionnaires: inexpensive, suited to less complex questions and the busy supermarket and casual employees
- Interviews: expensive, better suited to complex questions and would be used to collect information from the owner and department managers
- Observations: expensive, requires high level of permission, suited to multiple items of investigations
- Document analysis: expensive, better suited to establishing a detailed analysis of organisation documentation and workflow and would be used to collect information of the administrative operation of the business

3. Explain why a data flow is labelled using a noun.

Description	Marks	
Provides an explanation for the reason why a data flow is labelled using a noun	2	
Provides a limited explanation for the reason why a data flow is labelled using a	1	
noun	1	
Answer could include, but is not limited to:		
A data flow describes a single piece of data or logical collection of data; it is not an object (Entity) or an		
action (Process).		

4. Create a Context Diagram for the Ballajura Independent Supermarket.

Description	Marks
Correctly draws and labels the Context Diagram for the Ballajura Independent Supermarket	1–5
Correctly labelled diagram	
Supplier (1) Ballajura Independent Supermarket (1) Order details (1)	
Yourdon/DeMarco diagrammatic conventions correctly applied = (1)	

- 5. The systems analyst has recommended that the owners of the Ballajura Independent Supermarket replace their office computer system. You are to develop a report that documents your research into **two** different computer systems for the Ballajura Independent Supermarket. Your report will need to recommend **one** system that meets the requirements of the Ballajura Independent Supermarket. Your report should include the following sections:
 - Statement of specification
 - Hardware (input, output, processing and storage)
 - Software (operating system and application software)
 - Final recommendation of a computer system.

Description	Marks
Statement of specification	
provides an appropriate statement of specification for the Ballajura	
Independent Supermarket in the case study	2
provides a limited statement of specification for the Ballajura Independent	1
Supermarket in the case study	
Subtotal	2
Hardware	
provides an appropriate description of the recommended hardware	
components for the two computer systems:	1–4
■ input (1)	(for each
output (1)	computer system)
processing (1)	
storage (1)	
Subtotal	8
Software	
provides a description of the operating system for the two computer systems	1–2
provides a description of the application software for the two computer	
systems	1–2
Subtotal	4
Final recommendation	
provides a justified description of a recommended computer system	3
provides an appropriate description of a recommended computer system	2
provides a limited description of a recommended computer system	1
Subtotal	3
Total	17

6. Create an ICT code of conduct, suitable for the employees of the Ballajura Independent Supermarket.

	Description	Marks
•	provides a detailed and appropriate ICT code of conduct	5–6
•	provides an appropriate ICT code of conduct	3–4
•	provides a limited ICT code of conduct	1–2
	Total	6

Sample assessment task

Computer Science - General Year 12

Task 2 - Unit 1

Assessment type: Theory test	
Conditions	

Conditions

Time for the task: 40 minutes in class under test conditions

Task	weighting	3
I UJIN	AA CIBITOITI	•

4% of the school mark for this pair of units

List the six stages of the	Systems Development Life Cycle Approach.	(6 marks)
Stage 1:		
Stage 2:		
Stage 3:		
Stage 4:		
Stage 5:		
Stage 6:		
List three differences be	tween secondary storage and primary storage.	(3 marks)
Difference 1:		
Difference 2:		
Difference 3:		
Describe the purpose of	a Standard Operating Environment (SOE).	(3 marks)

Device		Input	Outp	ut	Both input and o
Mouse					
Speaker					
Printer					
Microphone					
Touch screen					
Scanner					
a) Identify the commercial v b) List four reas Product compo	compute videos. ons for	er system that you your choice. Syst	em 1		usiness producing (5 m System 2
a) Identify the commercial vb) List four reas	compute videos. ons for	er system that you	em 1		(5 m
a) Identify the commercial v b) List four reas Product compo CPU RAM	compute videos. ons for	your choice. Syst Intel Core 2 Duo processor 2 GB RAM	em 1	Intel i7	System 2 3.2 GHz processor
a) Identify the commercial value b) List four reas Product compo CPU RAM Hard Drive	compute videos. ons for	your choice. System that you sour choice. System Intel Core 2 Duo processor 2 GB RAM 500 GB	z em 1) 3.2 GHz	Intel i7 8 GB RA 2 TB	System 2 3.2 GHz processor
a) Identify the commercial value b) List four reas Product compo CPU RAM Hard Drive Optical Drive	compute videos. ons for	your choice. Syst Intel Core 2 Duo processor 2 GB RAM 500 GB 52 speed CD RV	z em 1 0 3.2 GHz	Intel i7 8 GB RA 2 TB 16 spee	System 2 3.2 GHz processor
a) Identify the commercial value b) List four reas Product compo CPU RAM Hard Drive	compute videos. ons for	your choice. System that you sour choice. System Intel Core 2 Duo processor 2 GB RAM 500 GB	z em 1 0 3.2 GHz	8 GB RA 2 TB 16 spee	System 2 3.2 GHz processor M d DVD RW NVIDIA GTX 460
a) Identify the commercial value is commercial value. The commercial value is commercial value is commercial value. The commercial value is commercial value.	compute videos. ons for	your choice. Syst Intel Core 2 Duo processor 2 GB RAM 500 GB 52 speed CD RV	z em 1 0 3.2 GHz	8 GB RA 2 TB 16 spee	System 2 3.2 GHz processor MM d DVD RW NVIDIA GTX 460 ith mini HDMI
commercial v (b) List four reas Product compo CPU RAM Hard Drive Optical Drive VGA Card	compute videos. ons for	System that you your choice. System Intel Core 2 Duo processor 2 GB RAM 500 GB 52 speed CD RV On board video	e em 1 0 3.2 GHz	Intel i7 8 GB RA 2 TB 16 spee 768 MB PCI-E w 24" LCD	System 2 3.2 GHz processor MM d DVD RW NVIDIA GTX 460 ith mini HDMI
(a) Identify the commercial value (b) List four reas Product compo CPU RAM Hard Drive Optical Drive VGA Card Monitor	computer videos. ons for nents	System that you your choice. System Intel Core 2 Dud processor 2 GB RAM 500 GB 52 speed CD RV On board video 17" LCD panel Swann DV Hom	e em 1 0 3.2 GHz	8 GB RA 2 TB 16 spee 768 MB PCI-E w 24" LCD	System 2 3.2 GHz processor MM d DVD RW NVIDIA GTX 460 ith mini HDMI panel
(a) Identify the commercial value (b) List four reas Product compo CPU RAM Hard Drive Optical Drive VGA Card Monitor Other	computerideos. ons for nents	System that you your choice. System Intel Core 2 Dud processor 2 GB RAM 500 GB 52 speed CD RV On board video 17" LCD panel Swann DV Hom	e em 1 0 3.2 GHz	Intel i7 8 GB RA 2 TB 16 spee 768 MB PCI-E w 24" LCD Swann I	System 2 3.2 GHz processor MM d DVD RW NVIDIA GTX 460 ith mini HDMI panel
(a) Identify the commercial value (b) List four rease Product composition CPU RAM Hard Drive Optical Drive VGA Card Monitor Other System recommentary	computer videos. ons for nents	System that you your choice. System Intel Core 2 Dud processor 2 GB RAM 500 GB 52 speed CD RV On board video 17" LCD panel Swann DV Hom card	eem 1 3.2 GHz V e Pro Firewire System 2	Intel i7 8 GB RA 2 TB 16 spee 768 MB PCI-E w 24" LCD Swann II card	System 2 3.2 GHz processor MM d DVD RW NVIDIA GTX 460 ith mini HDMI panel

State the role of each of the following parts of the central processing unit.	(5 marks
Register:	
Arithmetic logic unit:	
Program counter:	
System clock:	
Control unit:	
Describe the purpose of the boot process.	(2 marks
Describe the fetch-execute cycle.	(4 marks

of conduct.			(6 n

Total = 40 marks

Marking key for sample assessment task 2 – Unit 1

1. List the six stages of the Systems Development Life Cycle Approach.

Description	Marks
Correctly lists the stages of the systems development life cycle approach	1–6
Correctly lists the stages of the systems development life cycle approach	(1 mark for each stage)
Answer:	
Preliminary analysis	

- Analysis
- Design
- Development
- Implementation
- Evaluation and maintenance
- 2. List three differences between secondary storage and primary storage.

Description	Marks
Correctly identifies differences between secondary storage and primary	1-3
storage	(1 mark for each difference)

Answer could include, but is not limited to:

Storage medium

primary memory is stored on semi-conductors whereas secondary memory is stored on optical or magnetic media (Note: exception Solid State Drives)

Speed

- primary storage provides faster data access than secondary storage
- primary storage operates at a speed compatible with the processing speed of a CPU Volatility
- generally, primary storage (Random Access Memory [RAM]) stores data for a limited time while power is supplied to the computer, whereas secondary storage stores data after the computer is

Access

data needs to be transferred from secondary storage to primary storage before the computer can use the data

Location

primary storage is usually located on the computer motherboard whereas secondary storage is located external to the motherboard

Cost

primary storage is expensive per Gigabyte, when compared to magnetic media

3. Describe the purpose of a Standard Operating Environment (SOE).

Description	Marks
Provides a detailed description of the purpose of an SOE	3
Provides a description of the purpose of an SOE	2
Provides a limited description of the purpose of an SOE	1

Answer could include, but is not limited to:

A standard operating environment is the common installation on all computers of an operating system and the required suite of application software within an organisation or worksite. An SOE provides:

- reduced costs
 - maintenance (hardware, software and operating system) costs
 - purchase cost of software
 - total cost of ownership
 - deployment cost
- a consistent software base
- improved service support
- software deployment is quicker and maintained more easily
- improved computer and network functionality
- 4. The table below lists common input and output devices, some of which can be used for both input and output. Complete the table by placing a tick in the input, output or both input and output columns for each device.

	Marks		
Correctly identifies wheth	1–6		
input and output device			(1 mark each)
Answer			
Device	Input	Output	Both input and output
Mouse	✓		
Speaker		✓	
Printer		✓	
Microphone	✓		
Touch screen			✓
Scanner	✓		

- 5. Based on the information below:
 - Identify the computer system that you would recommend for a business producing commercial videos.
 - List **four** reasons for your choice.

Description	Marks		
Correctly identifies the most suitable computer system for producing commercial	1		
videos	1		
Subtotal	1		
	1–4		
Correctly lists four reasons for selecting computer system 2	(1 mark for each		
	reason)		
Subtotal	4		
Total	5		

Recommended computer system:

Computer system 2

Reasons could include, but are not limited to:

- faster CPU
- larger capacity RAM
- larger hard disk drive
- larger capacity optical drive
- larger screen size of the LCD monitor
- 6. State the role of each of the following parts of the central processing unit.

Description	Marks
Correctly states the role of the part of the central processing unit	1–5
Correctly states the role of the part of the central processing unit	(1 mark for each part)

Answer could include, but is not limited to:

- Register: a small amount of storage available to the central processing unit
- Arithmetic logic unit: performs integer arithmetic and logical operations
- Program counter: a register that contains the address (location) of the instruction being executed at the current time, or can be next address
- System clock: regulates the function and timing of all computer functions of the processor
- Control unit: directs the operation of the processor
- 7. Describe the purpose of the boot process.

Description	Marks
Provides a description of the boot process	2
Provides a limited description of the boot process	1
Annual and disclosing the standard and the standard and	

Answer could include, but is not limited to:

The boot process tests the functionality of key operations of the hardware and software components of a computer prior to loading the operating system.

Note: The boot process is complex, lengthy and dependent upon the hardware platform.

8. Describe the fetch-execute cycle.

Description	Marks
Provides a description of the fetch-execute cycle, including the role of the program counter	4
Provides a description of the fetch-execute cycle	3
Provides a brief description of the fetch-execute cycle	2
Lists the stages of the fetch-execute cycle	1
Total	4

Answer could include, but is not limited to:

The fetch-execute cycle involves a processor fetching a program instruction from its memory, determining what the instruction wants to do, and carrying out those actions. The cycle includes the following stages:

- fetch the instruction
- decode the instruction
- execute the instruction
- store the result.

The result generated by the execute phase is stored in the main memory, and/or sent to an output device. The program counter is updated with feedback from the arithmetic logic unit, to a different address from which the next instruction will be fetched.

9. Explain **two** reasons supported by examples, why an organisation would develop an ICT code of conduct.

Description	Marks
Reason 1	
Provides an explanation of why an organisation would develop an ICT code of conduct, using suitable examples	3
Provides an explanation of why an organisation would develop an ICT code of conduct	2
Provides a limited explanation why an organisation would develop an ICT code of conduct	1
Subtotal	3
Reason 2	
Provides an explanation of why an organisation would develop an ICT code of conduct, using suitable examples	3
Provides an explanation of why an organisation would develop an ICT code of conduct	2
Provides a limited explanation why an organisation would develop an ICT code of conduct	1
Subtotal	3
Total	6

Answer could include, but is not limited to:

A code of conduct is a voluntary set of rules that people agree to follow or abide by when using an organisation's computer hardware, software or resources. It is not a legal document, but is considered binding once agreement is provided. The reasons for developing an ICT code of conduct could include:

- ensuring a safe, reliable ICT environment
- preventing misuse of ICT resources by employees
- ensuring the security of personal data
- ensuring the security of organisational data.

Sample assessment task

Computer Science - General Year 12

Task 3 - Unit 1

Assessment type: Practical test

Conditions

Time for the task:

Two periods in class

- Period 1: for the planning and drafting of the spreadsheet (you will not have access to a computer)
- Period 2: for the practical test.

Task weighting

5% of the school mark for this pair of units

This practical test will be conducted over two class periods. The first period is allocated to planning a spreadsheet, while the second period is allocated to creating your spreadsheet.

Your task is to create a spreadsheet that will calculate the weekly pay for the employees of the Ballajura Independent Supermarket. The tables below provide the data you are to use in your spreadsheet. As the tables are linked, your spreadsheet will require the use of lookup tables.

The spreadsheet will need to:

- calculate the total daily pay for each employee
- calculate the total weekly pay for each employee, including penalty rates, given the days worked and the total hours worked per day
- calculate the total pay for all employees
- use an appropriate format and structure
- provide appropriate instructions for the user.

Staff hours worked last week									
Franksiss	Base pay	Hours worked							
Employee	Position	rate (\$/hr)	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Harry Grapes	Butcher	18	9	9	9	0	9	6	10
Marg Plum	Manager	20	9	8	9	9	0	5	5
Monica Nguyen	Checkout	15	9	9	0		6	9	9
Sally Jones	Checkout	15	9	9	9	9	6	9	9
Mary O'Conner	Checkout	15	9	9	0	9	6	9	9

Normal business hours			
Monday – Sunday			
6.30am to 5.30pm			

Penalty rates	
Saturday penalty rate	Sunday penalty rate
+ 35%	+ 50%

Period 1: Drafting the spreadsheet

Draft your spreadsheet for the Ballajura Independent Supermarket.

Ensure that your draft provides an indication of the following layout elements:

- employee names
- lookup table
- days worked
- hours worked
- total values
- formatting and structure
- instructions for the user.

(7 marks)

Your draft spreadsheet will also need to enable the calculation of the:

- total daily pay for each employee
- total weekly pay for each employee, including penalty rates, given the days worked and the total hours worked per day
- total pay for all employees.

(3 marks)

At the end of the first period, you are required to submit your draft spreadsheet.

Period 2: Creating the spreadsheet

Collect your draft spreadsheet from your teacher and create a spreadsheet for the Ballajura Independent Supermarket which calculates the:

- daily pay for each employee in the supermarket (3 marks)
- weekly pay for each employee, including overtime, given the days worked and the total hours worked per day
 (3 marks)
- salary paid for all employees. (6 marks)

Ensure that your spreadsheet:

uses an appropriate format and structure (3 marks)
 provides appropriate instructions for the user (2 marks)
 reflects all the layout elements in your draft spreadsheet (2 marks)
 provides a complete and workable solution. (3 marks)

Total = 32 marks

At the end of the second period, you are required to:

- resubmit your draft spreadsheet
- email to your teacher your spreadsheet.

Marking key for sample assessment task 3 - Unit 1

Description	Marks
Drafting the spreadsheet	
Draft spreadsheet provides an indication of the following layout elements:	
employee names	
lookup table	
• days worked	1–7
hours worked	(1 mark each)
• total values	
formatting and structure	
• instructions for the user	
Subtota	l 7
Draft spreadsheet enables the calculation of the:	
total daily pay for each employee	
• total weekly pay for each employee, including penalty rates, given the days worked	1–3
and the total hours worked per day	(1 mark each)
• total pay for all employees	
Subtota	J 3
Creating the spreadsheet	
Spreadsheet enables the calculation of:	
 the daily pay for each employee in the supermarket 	1–3
• the weekly pay for each employee, including overtime, given the days worked and the	
total hours worked per day	1–3
salary paid for all employees	1–6
The spreadsheet provides:	
an appropriate format and structure	1–3
appropriate instructions for the user	1–2
Subtota	l 17
Spreadsheet reflects:	
all of the layout elements in the draft spreadsheet	2
some of the layout elements in the draft spreadsheet	1
Subtota	1 2
Spreadsheet provides:	
a complete and workable solution	3
a partial but workable solution	2
an incomplete solution	1
Subtota	
Tota	I 32