Computer Science
General course

Externally set task 2018

50
minutes
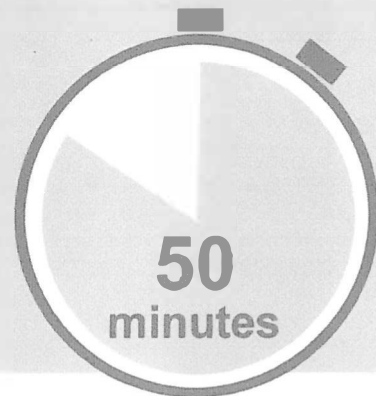
Strong sample

Student number: In figures

In words

Before starting this task check that you have:

- black or blue pen, 2B pencils
- sharpener
- eraser
- highlighters
- correction fluid/tape.

Total time for the task: 50 minutes
Total marks: 41 marks
Weighting: 15% of the school mark

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Question 1 (6 marks)

Describe the function of the components of the central processing unit listed below.

Register:

Registers assist the CPU function by storing relevant data, examples of specific registers are; Program counter, flag counter
Registers store instructions

Arithmetic logic unit:

performs comparison logic operations such as AND, OR, NOT as well as Mathematics; addition and Subtraction.
X

Program counter:

a specific register within the CPU, it points to the next instruction to be retrieved

Question 2 **(5 marks)**

(a) A computer user has discovered that their printer is not working and calls a technician for assistance. Outline **two** steps the technician might advise the computer user to take to troubleshoot the problem. (2 marks)

One: Turn the printer off and on again, this will restart the device and generally fixes! issues that occur in external devices.

Two: Check cable and network connections. Some connection issues between printer and computer are lose plugs or faulty network connections, restoring the connection often solves the problem

(b) Explain the process of troubleshooting a computer hardware fault. (3 marks)

when a problem arises, the first step is to try quick fixes for common issues such as restarting or reconnecting the equipment. if the issue persists more refined methods are employed to find the source of the issue such as trying other components that are known to work. Through the entire troubleshooting process, actions should be documented to increase fix speeds if it occurs again and to watch trends in the hardware

Question 3 (11 marks)

The ABC Gymnasium business uses the spreadsheet below to monitor its memberships Refer to this spreadsheet to answer the questions that follow.

ABC Gymnasium Membership

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3	Firstname	Surname	Street	Suburb	State	Postcode	Phone	Date of Birth	Payment Type	Fees Paid	Yearly Membership	
4	Joe	Smith	12 Harrison Road	Belmont	WA	6104	0415653212	8/03/2000	Yearly	600	600	← E
5	Bill	Jones	900 West Road	Gwelup	WA	6018	0413654981	5/09/2001	Monthly	55	660	
6	Jenny	Robbins	78 Smith Road	Perth	WA	6000	0416632325	16/02/1999	Quarterly	160	640	
7	Abby	Benns	56 Jorge Street	Midland	WA	6056	0456213986	2/01/2000	Monthly	55	660	
8										← D		
9	Total Fees										2560	← A
10	Average Fees										640	← B
11	Total Number of members										4	← C
12												

	A	B	C	
13	Payment type	Fees	Frequency	← F
14	Monthly	55.00	12	
15	Quarterly	160.00	4	
16	Yearly	600.00	1	
17				

See next page

(a) Write the function required to total all the fees in cell K9, labelled A on the spreadsheet.

(2 marks)

=SUM(k4:k7)

(b) Write the function required to average all the fees in cell K10, labelled B on the spreadsheet. (2 marks)

=AVERAGE(k4:k7)

(c) Write the function required to count the number of Yearly Memberships in cell K11, labelled C on the spreadsheet. (2 marks)

=COUNT(k4:k7)

(d) Write the function required to lookup the Fees Paid based on the Payment Type in cell J6, labelled D on the spreadsheet. (3 marks)

=VLOOKUP(I4:I7, A14:C16, 2, FALSE)

(e) Describe how the table labelled F on the spreadsheet is used. (2 marks)

Used as the array for the lookup functions in cells J4-J7 to retrieve the fee based on the corresponding payment type.

Question 4 (8 marks)

Refer to the data in the table below and answer the questions that follow.

Home Contents List

Room/Area	Item description	Make/Model	Number	Date purchased	Estimated current value
Living room	Coffee table	unknown	none	01/07/2017	$75.00
bedroom	Glass sculpture	local artist	none	10/04/2009	$300.00
Kitchen	Microwave oven	Smeg	VY1564-56-621	15/08/2011	$200.00
Living rom	Television	LG	90123908NBG	02/04/2016	$1500.00
Living room	Lounge suite	Cosy	none	08/05/2014	$1500.00
Kitchen	Fridge	Westinghouse	2514POL	24/12/2005	$1000.00
Bedroom	Bed	unknown	none	13/02/2015	$500.00
Total					$5075.00

(a)   Identify **one** issue with the integrity of the data and explain why it is an issue.   (4 marks)

Issue: Row 5 Column 1, Living Room

Explanation: Room is spelt incorrectly, this can lead to issues if the data is used as a reference or checked by a program as it will be listed as a different room or will not be counted at all.

(b)   Identify **one** data redundancy issue with the data and explain why it is an issue. (4 marks)

Issue: Living room is used three times

Explanation: while the room is listed three times each has a different item listed, this means it is difficult to pose queries that only involve the first field

Question 5 (11 marks)

A pet shop would like you to design a database for its products. Data for two of the products it sells is shown below. Use this information to answer the questions that follow.

Code:	Dogbed104
Product:	Pied dog bed
Description:	Sheepskin dog bed – Medium size
Quantity:	8
Cost Price:	$15.00
Vendor:	Better Beds for Pets

Code:	Catbrush89
Product:	Jones cat brush
Description:	Rounded cat brush for long hair
Quantity:	9
Cost Price:	$3.00
Vendor:	Jones Brush Supplies

(a) Complete the table below by listing the fields required to design the database for the two products and the data type for each field. (6 marks)

Field	Data type
Code	text
Product	text
Description	text
Quantity	number
Cost Price	currency
Vendor	text

(b)   Identify the field in the table that you would use as a primary key in the database.

(1 mark)

Code

(c)   Write a query to list all the Cat products that would be stored in the database.   (3 marks)

field: Code - Starts with = Cat

or includes = Cat

(d)   State the function of a primary key in a database.   (1 mark)

a unique identifier which can be used to retrieve specific
unique data