



Semester 1 Examination, 2020

Question/Answer Booklet

SAMPLE EXAM PAPER COMPUTER SCIENCE ATAR Year 11 Unit 1

Student Name: _____

Student Number:

Teacher's Name: Ms Radzi

Time allowed for this paper

Reading time before commencing work: 10 minutes

Working time for paper: 2.5 hours

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer Booklet

To be provided by the candidate

Standard items: pens, pencils, eraser, correction fluid/tape, ruler, highlighters

Special items: non-programmable calculators satisfying the conditions set out by the School Curriculum and Standards Authority for this course

Important note to candidates

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of exam
Section One: Short Answer	18	18	70	70	54
Section Two: Extended answer	4	4	80	60	46
Total				130	100

Instructions to Candidate

1. Answer the questions according to the following instructions.

Section One and Two: Write your answers in this Question/Answer Booklet.

2. When calculating numerical answers, show your working or reasoning clearly unless instructed otherwise.
3. You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
4. Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.
 - Planning: If you use the spare pages for planning, indicate this clearly at the top of page.
 - Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question(s) that you are continuing to answer at the top of the page.

SECTION ONE – SHORT ANSWER

[70 MARKS]

Question 1

(2 marks)

For each of the devices listed below, indicate with a tick (✓) whether it is an input or output device.

Name	Input	Output
Printer		
Microphone		
Joy stick		
Projector		

Question 2

(2 marks)

Describe the main difference between primary and secondary storage.

Question 3

(2 marks)

Joe wants to download and store 24 TV shows that are 600MB each + 2 movies that are 1.3 GB each. Will these all fit onto a 15GB external hard-drive? **Justify your answer.**

Question 4

(1 mark)

What is troubleshooting?

Question 5**(5 marks)**

Fill in the blanks with appropriate systems architecture terminology that matches the descriptions given below:

Terminology	Description
	Produces pulses at a fixed rate to synchronize computer operations
	A special register that stores the address of the next instruction to be processed
	Contains circuitry that executes the arithmetic and logical calculations
	A set implementation of an operating system (OS) and its associated hardware and software applications for all computers in a business
	A set of parallel wires that move data as signals from one component on the motherboard to another.

Question 6**(3 marks)**

- a. (1 mark)
What is booting?

- b. (2 marks)
How is a warm boot different to a cold boot?

Question 7

(1 mark)

Describe a preventative maintenance task that a user can perform to keep a computer functioning correctly.

Question 8

(2 marks)

Describe two advantages of preventative maintenance on a computer system.

Advantage 1:

Advantage 2:

Question 9

(4 marks)

List two advantages and two disadvantages of using prototyping.

Advantages:

Disadvantages:

Question 10

(6 marks)

Name the 6 stages of the Systems Development Life Cycle (SDLC).

Stage 1

Stage 2

Stage 3

Stage 4

Stage 5

Stage 6

Question 11

(6 marks)

a. (1 mark)

What is project management?

b. (4 marks)

Project management involves four steps: planning, budgeting, scheduling and tracking of the project. Indicate in what steps the following tasks would occur.

Task	Step
Break the project into a series of tasks and estimate how long each task will take to complete.	
Once the project has started, the actual start and finish dates for each task are entered into a special Gantt chart to provide an up-to-date picture of the tasks that are on time and those that are lagging.	
Create a list of resources (human, material, technical) and predict the cost of using that resource,	
Create a Gantt chart to display the order and duration of tasks against the progression of time.	

- c. (1 mark)
Why is project management needed?

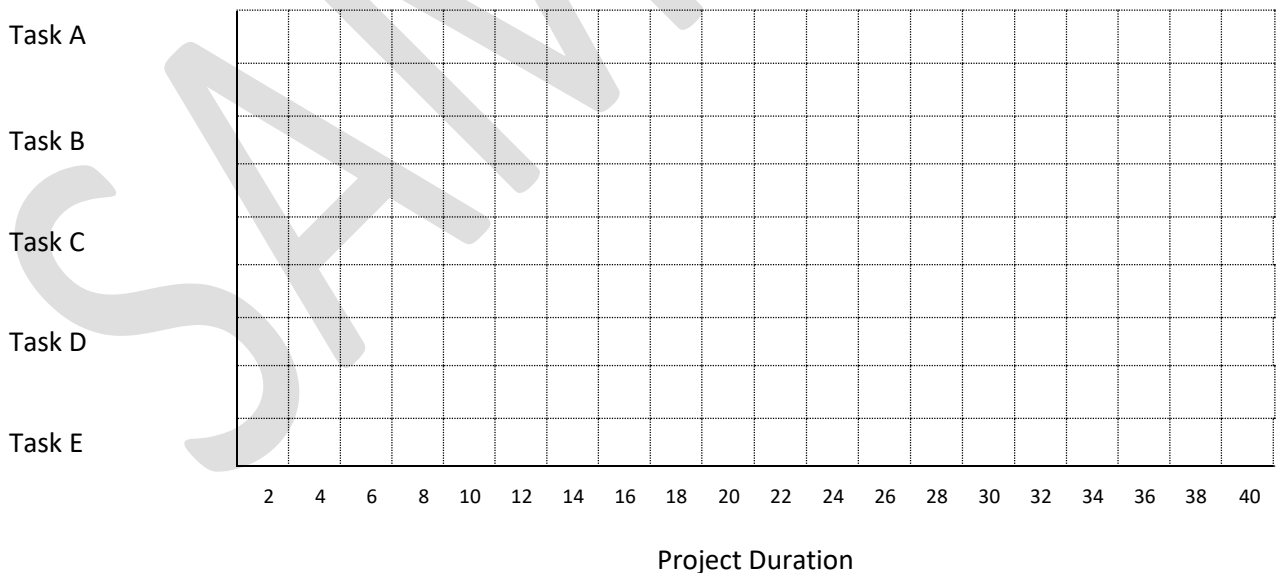
Question 12

(6 marks)

- a. (5 marks)
Use the estimated data provided below for a project to complete the Gantt chart below.
Each square represents 2 days.

Activity	Estimated Duration (length)	Predecessor
Task A	2 days	
Task B	6 days	Task A
Task C	18 days	Task B
Task D	4 days	Task C
Task E	6 days	Task D

Gantt chart



- b. (1 mark)
How long is the project expected to take? .

Question 13

(3 marks)

	A	B
1	Player Results	
2		
3		Points scored
4	Josh	20
5	Luke	15
6	Kai	12
7	Nathan	6
8	Rob	11
9	Colin	28
10	Mustafa	19
11		
12	Total	111
13	Average	
14	Highest	
15	Lowest	

Write the formulae should be entered into each of the following cells.

B13

B14

B15

Question 14

(2 marks)

		C5	fx =B5*\$B\$2		
	A	B	C	D	E
1	Weekly Wages				
2	Rate:	\$ 21.50			
3					
4	Name	Hours	Wages		
5	Williams	20.0	\$ 430.00		
6	White	30.0			
7	McMahan	40.0			

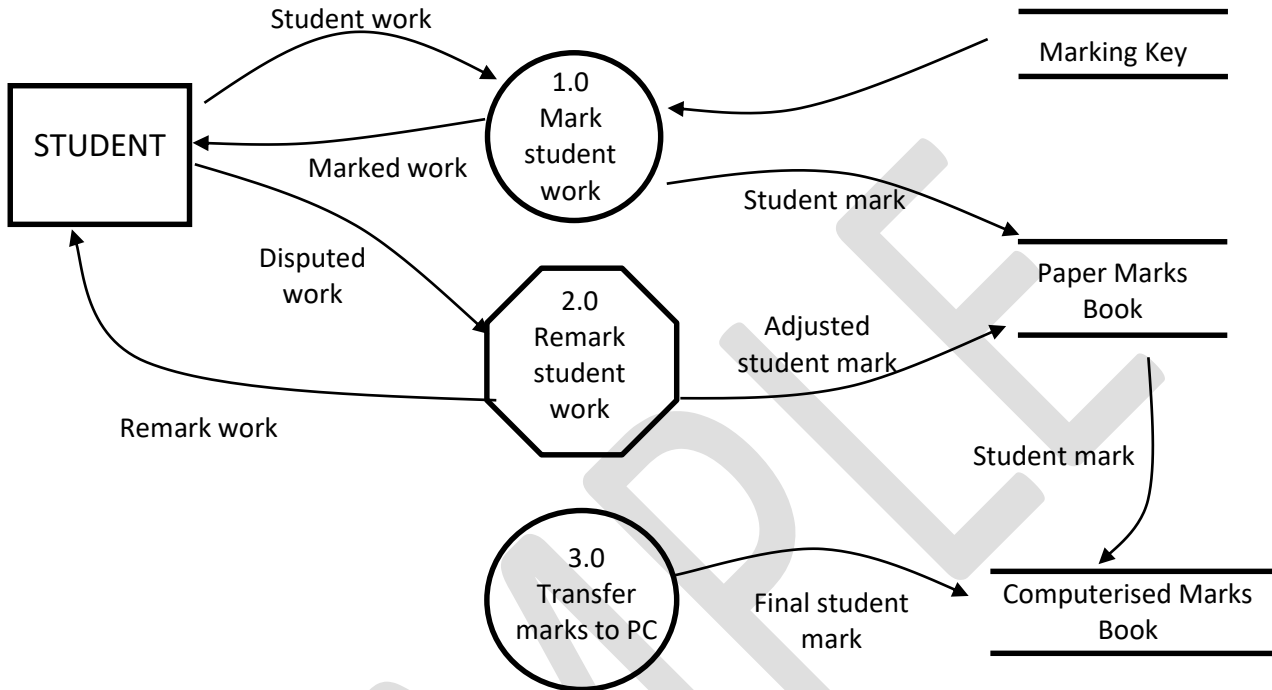
In the above spread-sheet, C5 has the formula = B5 * \$B\$2 entered. It uses absolute cell and relative cell referencing. Explain why the two referencing types are necessary?

Question 15

(5 marks)

List 5 things that are wrong with the following data flow diagram. Label the diagram with the letters A, B, C, D and E to indicate the location of the errors.

Level 0 Data Flow Diagram for the Student Assessment System



A

B

C

D

E

Question 16

(7 marks)

Refer to the tables given below to answer the following questions:

GroupCode	GroupName	Description	NumDiffSpecies	WarmBlood
AMP	Amphibian	A cold-blooded vertebrate animal having moist skin without scales. Most amphibians lay eggs in water, and their young breathe with gills but develop lungs and breathe air as adults. Amphibians include frogs, toads, and salamanders.	7665	<input type="checkbox"/>
BIR	Bird	A warm-blooded, egg-laying vertebrate animal that has wings for forelimbs, a body covered with feathers, a hard bill covering the jaw, and a four-chambered heart.	10200	<input checked="" type="checkbox"/>
FISH	Fish	A cold-blooded vertebrate animal that lives in water. It has gills for obtaining oxygen, a lateral line for sensing pressure changes in the water, and a vertical tail. Most fish are covered with scales and have limbs in the form of fins.	29000	<input type="checkbox"/>
INV	Invertebrates	An animal that lacks a backbone and internal skeleton. It has a relatively simple anatomy and behavior. Includes insects, worms, arthropods, sponges, molluscs, octopuses	1305075	<input type="checkbox"/>
MAM	Mammal	Any of various warm-blooded vertebrate animals whose young feed on milk that is produced by the mother's mammary glands. It has a diaphragm that separates the heart and lungs from the other internal organs, red blood cells that lack a nucleus, and usually hair or fur.	5500	<input checked="" type="checkbox"/>
REP	Reptile	Cold-blooded vertebrates that have lungs, an outer covering of horny scales or plates, and young produced in amniotic eggs. Includes tortoises, turtles, snakes, lizards, and crocodiles	7925	<input type="checkbox"/>

tblAnimalGroup

AnimalCode	AnimalName	Diet	AnimalGroupFK
BEE	Bee	Flower nectare	INV
BNOSE	Bottle-nosed dolphin	Small fish	MAM
CRI	Cricket	Plant, dead insects, seeds, leather, cloth	INV
ECH	Echidna	Ants and termites	MAM
EMU	Emu	Insects and native plants	BIR
GRTUR	Green sea turtle	Small fish	REP
HUMPB	Humpback whale	Fish	MAM
KOA	Koala	Eucalyptus leaves	MAM
SCROC	Saltwater crocodile	Anything they like!	REP

tblAnimalDetails

SEE NEXT PAGE

a. (2 marks)

Explain what will happen (and why) if you try to add the following data to tblAnimalDetails. Make sure you use the previous tables on page 10 in your explanation.

AnimalCode	AnimalName	Diet	AnimalGroupFK
LRTF	Little Red Tree Frog	Flies, bugs, grasshoppers, crickets, moths and other insects.	FRO

b. (1 mark)

Enter the criteria to the QBE grid to create a query so that it will list all the animal groups that have more than 10000 different species.

Field:	GroupName	NumDiffSpecies	
Table:	tblAnimalGroup	tblAnimalGroup	
Sort:			
Show:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:			
or:			

c. (2 marks)

Fill in the QBE grid to create a query so that it will list all the animals that are warm blooded.

Field:	AnimalName	WarmBlooded	
Table:	tblAnimalDetails		
Sort:			
Show:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:			
or:			

d. (2 marks)

Enter the criteria to the QBE grid to create a query so that it will list all the animals that belong to the mammal animal group and have some type of fish in their diet.

Field:	AnimalName	GroupName	Diet
Table:	tblAnimalDetails	tblAnimalGroup	tblAnimalDetails
Sort:			
Show:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:			
or:			

Question 17

(5 marks)

a. (5 marks)

List the 3 parts of buses and explain what it does.

b. What is the advantage of a computer with a larger bus size (width)?

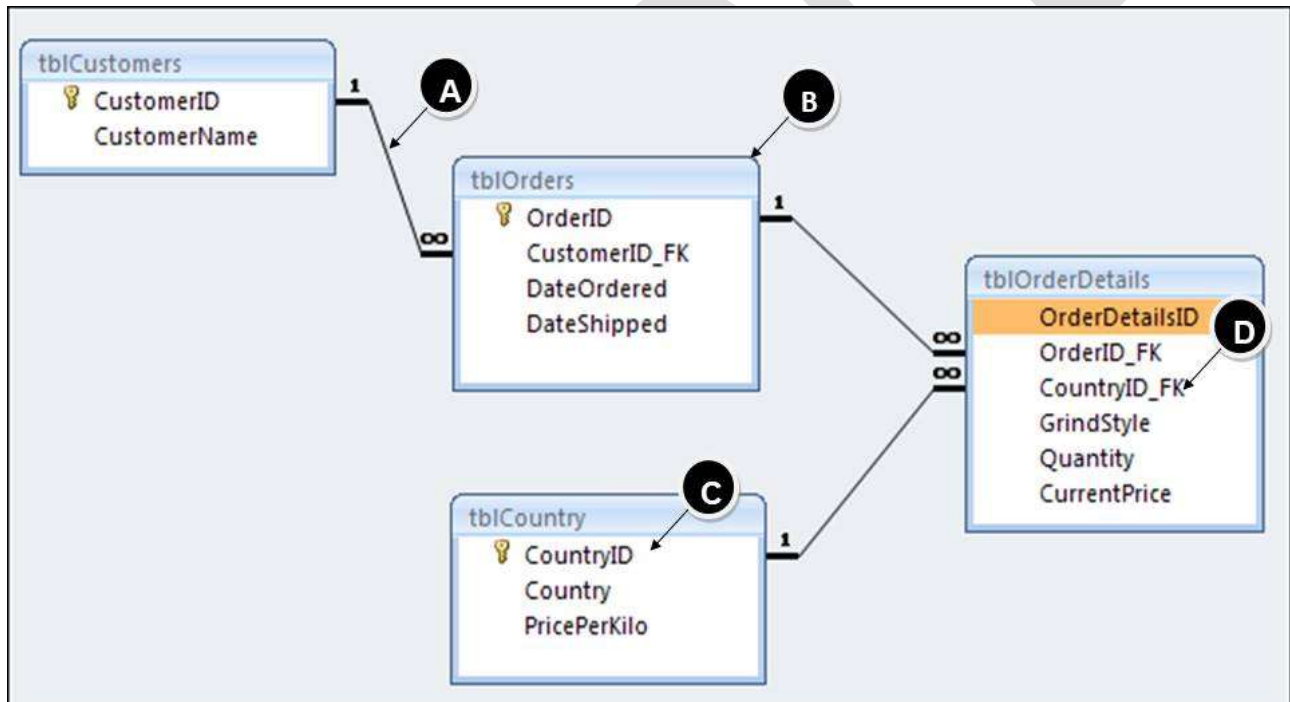
c. What is the unit measurement for bus speed?

Question 18

(8 marks)

Use the diagram below to name and list the purpose of each labelled database element.

Label	Name	Purpose
A		
B		
C		
D		



SECTION TWO - EXTENDED ANSWERS

[60 MARKS]

Question 19

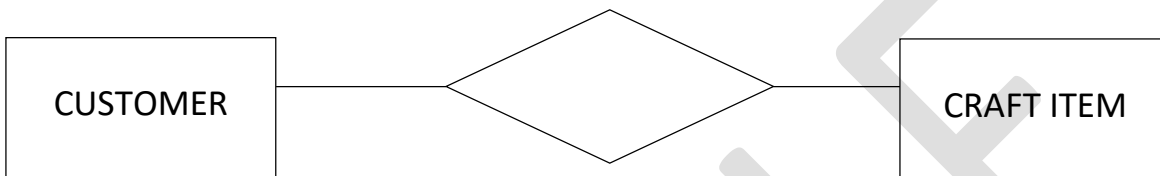
(12 marks)



Crafty Crafts is a small business that sells items created by local crafts people. A customer can buy many different items and an item can be bought by many customers.

a. (2 marks)

Complete the ERD below so show the relationship and cardinality between customers and craft items.



b. (10 marks)

Complete the ERD below so as to resolve the M:N relationship. Remember to include the following in the new ERD:

- An appropriate name to the third entity
- The relationships and cardinality
- At least three attributes to each entity
- Underline the primary keys.
- Write FK at the end of each required foreign key

Question 20**(7 marks)**

a. (4 marks)

Describe 2 methods that the owner of Crafty Crafts could set to make sure that only authorised users can access the data stored on the computer.

Method 1

Name: _____

Description: _____

_____**Method 2**

Name: _____

Description: _____

b. (3 marks)

The owner of Crafty Crafts wants his employees to have ICT ethics.

i) Define the term **ethics**._____

ii) One of the employee's copied a friend's Microsoft Excel program, then suggested to the owner to copy it onto the business computer. What is the problem with the owner doing this?

iii) What is the problem with the employee suggesting to copy the program?

Question 21

(24 marks)

A recent dramatic growth in Crafty Crafts business has led the owner to review his current system for tracking and re-ordering items. You have observed:

When a customer buys items, the process to record the sale details are:

The customer indicates the required items

The owner uses the stock list to get the item price, calculates the total cost of the sale and then tells the customer the total cost.

The customer pays for the items and a tax invoice is given to the customer. A copy of the tax invoice is placed in the sold items file.

The owner adjusts the item quantity of the item on the stock list.

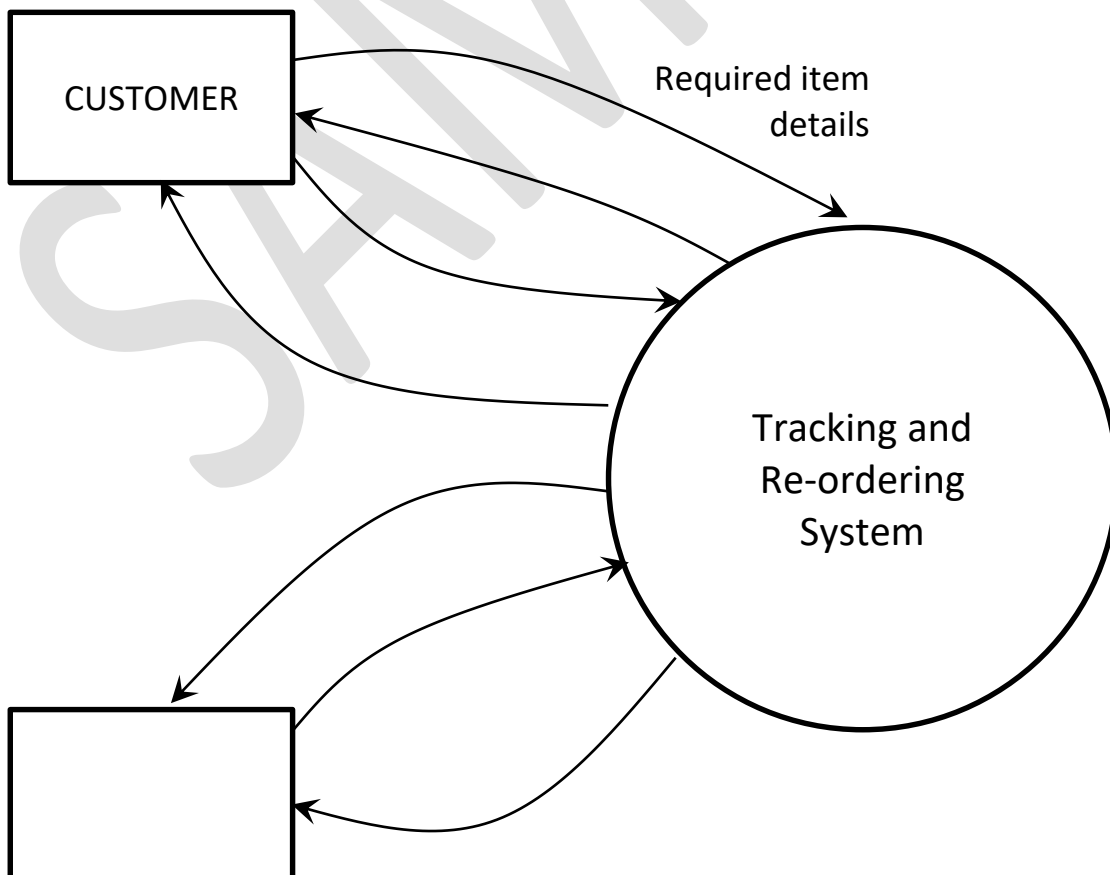
Once a week the manager uses the item quantities listed on the stock list to determine which items need to be ordered. These are recorded on the stock order form which is sent to the crafts person. A stock order form copy is filed into the pending orders file.

When the crafts person supplies the items, the owner uses his stock order form copy to tick off each received item and then updates the quantity of items on the stock list.

Once a month, the manager uses the copies of the tax invoice to calculate the amount of commission earned by each crafts person. He writes the cheques and sends the commission payment to each sales person. A copy of the commission payment is entered into the Commission Paid ledger. *(Note: a ledger is a book)*

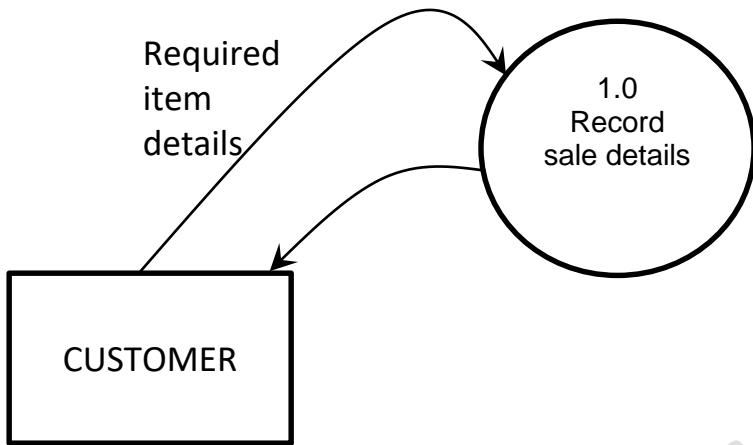
a. (7 marks)

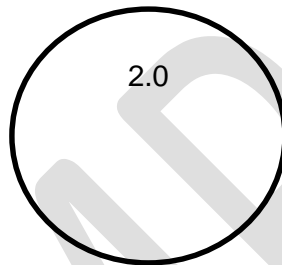
Complete the context diagram for the tracking and re-ordering system.

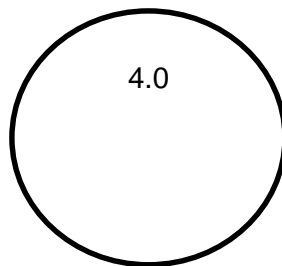
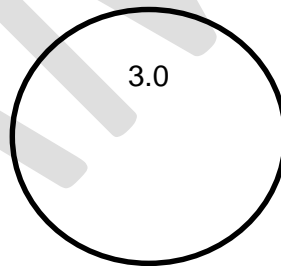


SEE NEXT PAGE

- b. (17 marks)
Complete the Level 0 data flow diagram below for the tracking and re-ordering system.







Question 22

(17 marks)

Use the spread-sheet diagram below to answer the following questions.

Crafty Crafts Customer Tax Invoice							Invoice num	123
ItemCode	Item Name	Unit Cost	Quantity	Item Total	GST Payable	GST Total	Commission Rate	Commission
8	Wooden train set	\$ 60.00	2	\$ 120.00	\$ 12.00	\$ 132.00	20%	\$ 24.00
7	Wooden book marks	\$ 5.00	10	\$ 50.00	\$ 5.00	\$ 55.00	20%	\$ 10.00
1	Ceramic coffe cup	\$ 15.00	4	\$ 60.00	\$ 6.00	\$ 66.00	10%	\$ 6.00
Total Cost						\$ 253.00		
GSTRate								
10%								
Stock List								
Item Code	Item name	Unit Cost	Quantity in stock	Commission rate	Crafts person	Re-order		
1	Ceramic coffe cup	\$ 15.00	29	10%	Sally Jones			
2	Ceramic casserole (smal	\$ 6.00	2	15%	Sally Jones	Yes		
3	Wooden bookends	\$ 35.00	8	25%	Fred Jakamarra			
4	Stainless steel wall art	\$ 255.00	4	17%	Sam Lee			
5	Wooden cheese board	\$ 55.00	6	15%	Kai Lee			
6	Ceramic wall art	\$ 283.00	1	11%	Gail Smith	Yes		
7	Wooden book marks	\$ 5.00	50	20%	Fred Jakamarra			
8	Wooden train set	\$ 60.00	3	20%	Kai Lee	Yes		
9	Wooden side table	\$ 580.00	2	20%	Kai Lee	Yes		
10	Stainless birdbath	\$ 295.00	7	12%	Sam Lee			

- a. (2 marks)
List the steps required to name the shaded area **StockList**.

- b. (4 marks)
What formulae should be entered into the following cells?

E4

F4

G4

G10

c. (2 marks)
 The Re-order column indicates YES if the quantity in stock of that item is less than 4. What formula should be entered into G18?

d. (3 marks)
 What formula should be entered into C4 so that it uses a vlookup lookup table and the item code entered into A4 to list the unit cost?

e. (1 mark)
 The craft person gets a commission based on the Item Total. What formula should be entered into J4 so that it uses the commission rate in I4 and the Item Total to calculate the commission earned?

f. (1 mark)
 The customer only needs to see part of the invoice. Explain how it is possible to restrict what is printed so that the customer only gets A1:G10.

g. (4 marks)
 Give examples of the following spread-sheet elements.

Element	Example
Label	
Value	
Displayed value	
Range	

End of Section 2

END OF PAPER

