Centre Number	Candidate Number	Candidate Name

NAMIBIA SENIOR SECONDARY CERTIFICATE

COMPUTER STUDIES ORDINARY LEVEL 6134/1

PAPER 1 2 hours 30 minutes

Marks 100 **2022**

Additional Materials: Non-programmable calculators

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Candidates answer on the Question Paper in the spaces provided.
- Write your Centre Number, Candidate Number and Name in the spaces at the top of this page.
- Write in dark blue or black pen.
- You may use a soft pencil for any rough work, diagrams or graphs.
- Do not use correction fluid.
- Do not write in the margin *For Examiner's Use*.

- Answer **all** questions.

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The businesses mentioned in this question paper are entirely fictitious.

For Examiner's Use

Marker	
Checker	

This document consists of **16** printed pages and **1** blank page.

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

For Examiner's Use

1 Explain, using examples where appropriate, the meaning of these computer terms:

(a) Integrated software

.....

.....

.....

..... [2]

(b) 5G

.....

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.....

..... [2]

(c) Handshaking

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..... [2]

(d) Runtime errors

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..... [2]

(e) Lossless compression

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..... [2]

For Examiner's Use

2 Computer crimes are a major concern in any organisation.

Describe how security tokens are used to prevent identity theft.

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..... [3]

3 Physical Science learners can access a Periodic Table on the school website. Part of the table is shown below:

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe

A learner selects an element from the table and is then directed to another web page where details of the chosen element can be found.

(a) What would be a suitable input device for this application?

..... [1]

(b) Describe how the input device in **(a)** above would interact with the table.

.....

..... [2]

(c) Give **one** advantage and **one** disadvantage of this system when compared to finding the same information from books.

Advantage

.....

.....

Disadvantage

.....

.....

[2]

For Examiner's Use

4 A company wants to set up a client-server network at their Mariental branch.

(a) Describe a client-server network.

.....

.....

.....

..... [2]

(b) Give **two** advantages and **two** disadvantages to the company of using a client-server network as opposed to a peer-to-peer network.

Advantages

1 .....

.....

2 .....

.....

Disadvantages

1 .....

.....

2 .....

.....

[4]

5 Nanotechnology is a branch of technology that deals with small particles.

Describe **one** way in which nanotechnology can be used in the area of medicine.

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..... [2]

For Examiner's Use

6 Jacob owns a mini-market at a village near Ondangwa. He recently started using a computerised system in his shop which was developed for him by Simon, a software developer.

(a) Simon informed him that they need to evaluate the newly implemented computerised system.

Explain why it is important to evaluate the new system.

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..... [2]

(b) Jacob is well informed about the usefulness of the system maintenance.

Explain what system maintenance involves.

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..... [3]

For Examiner's Use

7 A library uses the check digit method to verify if an ISBN number of a book is valid. Below is an example of an ISBN number. The last digit is always the check digit. In this example, the check digit is the **4** at the end.

The validity for the above ISBN number is calculated using the following algorithm:

- multiply the digits by 1 and 3 alternately (the first digit by 1, the second digit by 3, the third digit by 1, the fourth digit by 3, and so on.)
  Remember NOT to include the check digit in the calculations.
- add the products together
- divide the sum by 10 and find the remainder
- subtract the remainder from 10
- If the answer is the same as the check digit in the ISBN number, then the ISBN number is valid.

Using the algorithm described above,

(a) check whether the following ISBN number is valid: 9781-3525-4345-1.

Show how you arrived to your answer.

.....

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..... [5]

For Examiner's Use

(b) Find the check digit for this ISBN number. Show how you arrived to your answer.

978-99916-98-28-__?__

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.....

.....

.....

.....

..... [3]

8 Explain what is meant by primary, secondary and off-line storage. Give an example of each.

Primary storage .....

.....

Example .....

Secondary storage .....

.....

Example .....

Off-line storage .....

.....

Example .....

[6]

For Examiner's Use

9 Describe how a car faults diagnosing expert system can be used.

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..... [5]

10 Describe the application of data logging in weather forecasting.

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..... [5]

For Examiner's Use

11 Answer the following questions with reference to the spreadsheet below, containing information about items sold in a shop.

	A	B	C	D	E
1	**Computer Sales**				
2					
3	**Item**	**Unit Price(N$)**	**Quantity**		
4	Monitor	800	17		
5	Modem	300	52		
6	Mouse	75	33		
7	Keyboard	120	11		
8	CD	7	212		
9	Memory Stick	120	95		
10					

(a) Write down the formula to calculate the average price of the 6 items.

..... [1]

(b) What steps should be taken to sort the table in descending order of quantity?

.....

.....

.....

..... [4]

(c) Assuming that:

- Cell D4 of the spreadsheet contains the formula ***=B4*C4***
- The formula in cell D4 is then copied into cells D5 through D9.

Write down the formulas that you expect to find in cells D5 and D7.

D5 .....

D7 .....

[2]

For Examiner's Use

12 The following tables are showing two views of a database table called student.

View 1

Field	Data type
ID	Text
Surname	Text
Initials	Text
DateOfBirth	Date
ExamMark	Number

View 2

ID	Surname	Initials	DateOfBirth	ExamMark
St001	Mbehe	V.T	31/01/2000	73
St002	Thomas	A.L	15/11/2001	60
St003	Vuiton	S.K	21/02/2000	60

(a) How many records are shown in the student table?

..... [1]

(b) Which view shows the design view?

..... [1]

(c) **(i)** Define the term *Primary Key*.

.....

..... [1]

(ii) Which field will be the appropriate primary key field in the student table?

..... [1]

(d) Write down a query criteria to show all students who scored 60 marks in the examination.

.....

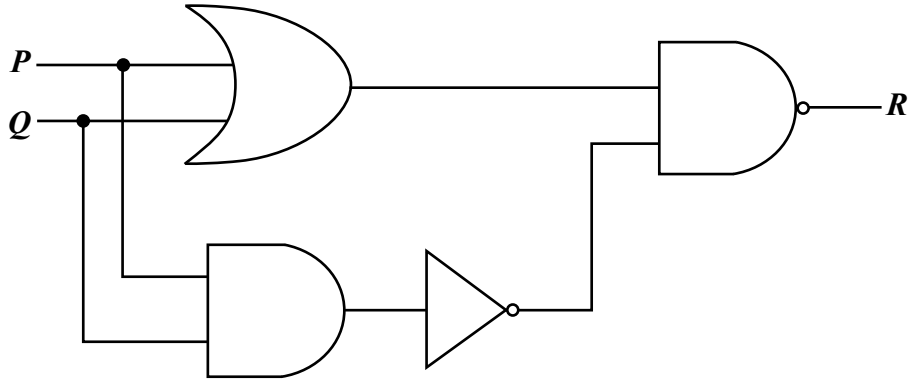
..... [1]

(e) A query with the criteria **[DateOfBirth < 01/01/2001]** is run on the student table. State the ID(s) that would be output.

..... [1]

For Examiner's Use

13 Construct the truth table for the logic circuit below.



P	Q	Working space	R
0	0		
0	1		
1	0		
1	1		

[4]

14 A light bulb (**W**) will turn on if switch **A** is on and switch **B** is off or switch **A** is off.

Using appropriate logic circuit symbols, draw a logic circuit for the above condition.

[4]

For Examiner's Use

15 Near Field Communication (NFC) uses RFID technology. An automatic washing machine contains a device to read RFID chips sewn into clothing. An item of clothing with RFID tag is scanned as it is placed in the washing machine it is scanned.

(a) Describe how the data is read from the NFC chip.

.....

.....

.....

..... [2]

(b) State **two** benefits of using NFC technology in a washing machine.

1 .....

.....

2 .....

.....

[2]

(c) Give **three** differences between Bluetooth and NFC.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

For Examiner's Use

16 The table below shows the content of different memory addresses to be accessed and executed by the central processing unit (CPU).

Address	Content
0001	0110 1110
0010	0101 0001
0011	1000 1100
0100	1001 1101

The trace table below is used to show how the contents of different registers change during the fetch-decode-execute cycle.

(a) Using the information in the table above, complete the trace table to show the content of each register at each step.

Step	PC	MAR	MDR	IR
	0010			
MAR ← PC				
PC ← PC + 1				
MDR ← DATA(MAR)				
IR ← MDR				

[4]

(b) Explain what happens to the data in the IR during the next steps of the fetch-decode-execute cycle?

.....

.....

.....

..... [2]

For Examiner's Use

17 The following algorithm is intended to find the highest mark achieved by one learner who has taken four tests. The algorithm contains **two** errors.

```
1 Total ← 0
2 Count ← 1
3 WHILE Count <= 3 DO
4   INPUT Mark
5   Total ← Total - Mark
6   Count ← Count + 1
7 ENDWHILE
8 Average ← Total/Count
```

(a) State whether this algorithm uses selection or repetition?

..... [1]

(b) Identify the errors and for each error, suggest a possible correction.

Error 1 .....

Correction .....

Error 2 .....

Correction .....

[4]

For Examiner's Use

18 A program is required to display the total of all odd numbers between 0 and 50.
Write an algorithm to carry out this task.

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[6]

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