Centre Number	Candidate Number	Candidate Name

NAMIBIA SENIOR SECONDARY CERTIFICATE

COMPUTER STUDIES ORDINARY LEVEL **4325/1**

PAPER 1 2 hours 30 minutes

Marks 100 **2017**

No Additional Materials are required.

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.

This document consists of **14** printed pages and **2** blank pages.

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

1 Explain, using an example where appropriate, the meaning of the following terms.

(a) MICR

....

....

.... **[2]**

(b) Learning Management System

....

....

.... **[2]**

(c) CCTV

....

....

....

.... **[2]**

(d) Validation

....

....

....

.... **[2]**

(e) Router

....

....

....

.... **[2]**

2 **(a)** State what is meant by an *operating system*.

....

.... [1]

(b) Name **three** functions of an operating system.

1 ....

....

2 ....

....

3 ....

.... [3]

(c) Some microprocessor controlled devices do not need an operating systems.

(i) Give **one** example of such a device.

.... [1]

(ii) Give **one** reason why it does not need an operating system.

....

.... [1]

3 Identify **two** ways in which computers have affected how music is written and produced.

1 ....

....

2 ....

.... [2]

[Turn over

4 A car manufacturing company is introducing robots.

(a) State **one** job which will be done by the robots.

.... [1]

(b) Describe **two** effects of the introduction of robots on the workers.

1 ....

....

2 ....

.... [2]

(c) One of the advantages to management is to reduce overall costs.
Give **two** reasons why using robots could reduce costs.

1 ....

....

2 ....

.... [2]

5 **(a)** Give **two** differences between the Internet and an intranet.

1 ....

....

2 ....

.... [2]

(b) Give **two** reasons why companies allow intranet access rather than Internet
access to their employees.

1 ....

....

2 ....

.... [2]

6 Grand Designs is a company that specialises in designing educational toys for toddlers. Grand Designs would like to start using a CAD (Computer Aided Design) program to design some of the new products.

(a) Give **two** features you would expect to see in a typical Computer Aided Design (CAD) program.

1...

....

2...

.... [2]

(b) Describe **two** specialist output devices which could be used with a CAD program when developing a new product.

1...

....

2...

.... [2]

7 Expert system shells are important in the development of medical expert systems.

(a) State **two** main parts of any expert system.

1...

2... [2]

(b) Describe **two** advantages of using an expert system in medicine.

1...

....

2...

.... [2]

(c) Give **one** other application where expert systems would be useful.

.... [1]

8 State **two** effects on society that the increase of businesses using e-commerce has had.

1..

....

2..

.... [2]

9 A municipality wants to convert its manual information system to a computerised system. A system analyst is to be employed to review the current manual system.

(a) Name **two** methods the system analyst could use to find out how the current system works.

Explain how each method would be used to gather information.

Method 1 ....

Explanation ....

....

Method 2...

Explanation ....

.... [4]

(b) State **two** methods that could be used to implement this new system. Explain why each method could be chosen.

Method 1 ....

Explanation ....

....

Method 2...

Explanation ....

.... [4]

(c) State the purpose of the User documentation in the new system.

.... [1]

10 In a large supermarket in Windhoek, a digital light meter uses a 3-digit LCD to show customers which vacant till to use.

The value of each digit on the instrument display is stored as a 4-bit binary number in a register.

For example:

	8	4	2	1	
	1	0	0	0	X
	0	1	0	1	Y
	0	0	0	1	Z

X Y Z
| 8 | 5 | 1 | is represented by:

(a) What value is shown on the display if the 4-bit binary register contains the following? [3]

	8	4	2	1
X	0	0	1	1
Y	1	0	0	1
Z	0	0	1	0

→

X	Y	Z

(b) What would be stored in the 4-bit binary registers if the display shows the following? [3]

X Y Z
| 2 | 7 | 6 |

→

	8	4	2	1	
					X
					Y
					Z

[Turn over

11 A safety system has been developed to regulate the heat of modern car engines.

If the engine gets too hot, a computer system on the vehicle automatically regulates the engine heat.

(a) What type of sensors could be used in the car engine?

.... [1]

(b) Describe what the safety system does to constantly monitor and control the heat of the car engine.

....

....

....

....

....

.... [3]

(c) (i) Give **two** advantages of using this type of monitoring and control in the car engine.

1 ....

....

2 ....

.... [2]

(ii) What could go wrong in this safety system?

....

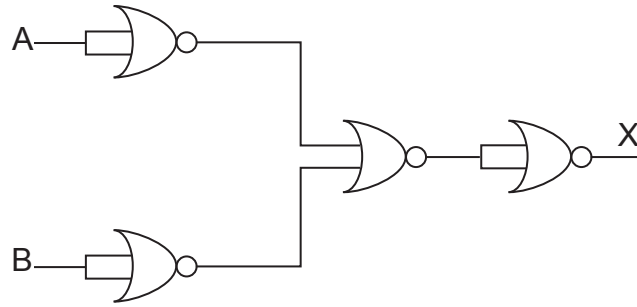... [1]

(d) Besides the safety system mentioned above, describe **one** other role of computers in modern motor vehicles.

....

.... [2]

12 (a) (i) Complete the truth table for the logic circuit which is made up of NOR gates only.

A	B	Working space	X
0	0		
0	1		
1	0		
1	1		

[2]

(ii) What single logic gate has the same function as the above logic circuit?

.... [1]

(b) A buzzer, Y, sends a signal (Y = 1) when certain conditions in a chemical process are detected. The inputs are

Input	Binary value	Condition
A	1	acidity > = 5
	0	acidity < 5
T	1	temperature > = 80°C
	0	temperature < 80°C

The buzzer, Y, returns a value of 1 if:

either (1) temperature > = 80°C AND acidity > = 5
or (2) temperature < 80°C.

(i) Draw the logic circuit for the above system using these logic gates.

[2]

(ii) Complete the truth table for the buzzer system.

A	T	Y
0	0	
0	1	
1	0	
1	1	

[2]

[Turn over

13 A school of 550 learners is organising a market day for each of their class groups. A Grade 12 class planned to sell the following items.

	A	B	C	D	E	F
1	Item	Quantity	Total stock value (N$)	No stock sold	Total amount sold (N$)	Value of unsold stock (N$)
2						
3						
4						
5	Hotdog	100	800	85		
6	Hamburger	70				
7	Vienna	150				
8	Meatball	80				
9	Chips	200				
10	Popcorn	300				

(a) Write down a cell that contains a

    (i) label,

    .... [1]

    (ii) value.

    .... [1]

(b) State the formula in C5 to calculate the total stock value.

.... [1]

(c) Write down a formula that could be inserted in cell F5 to calculate the value of the unsold stock (N$) of hotdogs.

.... [1]

(d) What would be the value of cell F5?

.... [1]

(e) Write down the steps to display a bar chart which will display the data in column A and E.

....

....

....

.... [2]

(f) Write the step(s) that need to be taken to display the data in cells A1 : F1 as shown in the table.

Item	Quantity	Total Stock Value (N$)	No Stock sold	Total amount sold (N$)	Value of unsold stock (N$)

....

.... [2]

[Turn over

14 An electric jukebox keeps a database of all its music CDs. A section of the database is shown in the table.

Reference number	CD title	Number of tracks	Special edition	CD length (mins)	Number of bonus tracks
1001	Phenomenal Woman	11	Y	42	2
1002	If You Forget Me	7	N	32	0
1003	There Is Another Sky	9	N	37	1
1004	Still I Rise	12	Y	51	3
1005	I'm Not Yours	8	N	43	0
1006	Let Me Do My Thing	10	Y	48	1
1007	One For You	14	N	54	4
1008	Secret Lover	7	N	34	0

(a) How many records are there in the database section?

.... [1]

(b) Using reference number only, write the output if the following query is entered.

(CD length (mins) < 50) OR (number of bonus tracks > 1)

.... [2]

(c) Write down a query to select which CDs are special edition and have more than 10 tracks.

....

.... [2]

(d) The database is going to be sorted in ascending order on CD length (mins). Using Reference number only, write down the order of the records following this sort.

....

.... [2]

(e) Give **two** advantages to the jukebox company of holding this information on a database.

....

.... [2]

15 Just Get In Transport has a contract to pick-up and off-load pre-school learners, to and from school. Each vehicle is fitted with a satellite navigation system (GPS) to help the drivers get directions.

(a) Describe how the GPS system knows the exact position of the vehicle.

....

....

....

....

....

.... [3]

(b) Give **two** advantages to the driver of having a GPS system installed in the vehicle.

1...

....

2...

.... [2]

(c) The satellite navigation system sometimes gives incorrect directions.
Give **two** reasons why that might happen.

1...

....

2...

.... [2]

[Turn over

16 Wheelers Automobile is a vehicle repair garage in Tsumeb. It repairs vehicles with an engine size of less than 8 litres. The owner of the garage conducts a daily survey to find out the average engine size and the number of engines with sizes greater than 1.5 litres.

Using Pseudocode or flowcharts, write an algorithm which

- inputs the size of an unknown amount of car engines per day.

- validates the engine size entered.

- terminates when a −1 engine is entered.

- determines and outputs the average engine size.

- displays the amount of engine sizes greater than 1.5 litres.

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.... [6]

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