MARKER CODE				

STUDENT ENROLMENT NUMBER (SEN)									

TONGA SCHOOL CERTIFICATE
2019
COMPUTING AND ICT

QUESTION AND ANSWER BOOKLET

Time allowed: 2 Hours

INSTRUCTIONS:

1. Write your **Student Enrolment Number (SEN)** on the top right-hand corner of this page.
2. This paper consists of **TEN QUESTIONS** and is out of 70 weighted score.

QUESTIONS	TOPICS	TOTAL SKILL LEVEL
ONE	DIGITAL TECHNOLOGIES	4
TWO	COMPUTER SYSTEM	15
THREE	ONLINE RESOURCES	8
FOUR	COMPUTER APPLICATIONS	6
FIVE	DESIGN APPLICATION	7
SIX	COMPUTATIONAL THINKING AND PROGRAMMING	9
SEVEN	SAFE HANDLING OF PC	6
EIGHT	CAREERS IN ICT	5
NINE	ETHICAL ISSUES	4
TEN	ENVIRONMENTAL ISSUES	6
	TOTAL	70

3. Answer ALL QUESTIONS. Write your answers in the spaces provided in this booklet.
4. Use a **BLUE** or **BLACK** ball point pen only for writing. Use a pencil for drawing if required.
5. If you need more spaces for answers, ask the supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on each additional sheet, number the questions clearly and insert them in the appropriate places in this booklet.
6. Check that this booklet contains pages 2-19 in the correct order and that pages 18-19 has been deliberately left blank.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR BEFORE YOU LEAVE THE EXAMINATION ROOM.

QUESTION ONE: DIGITAL TECHNOLOGIES

This is a statement by a local Politician:
"Digital technologies can be defined as electronic tools, systems, devices and resources that generate, store or process data. Such tools are around us today; transforming the way we work and live". Use what you've seen in Tonga to support the given statement by answering the following questions.

1. State **ONE** (1) example of the impact of digital technologies in the Pacific Island Countries.

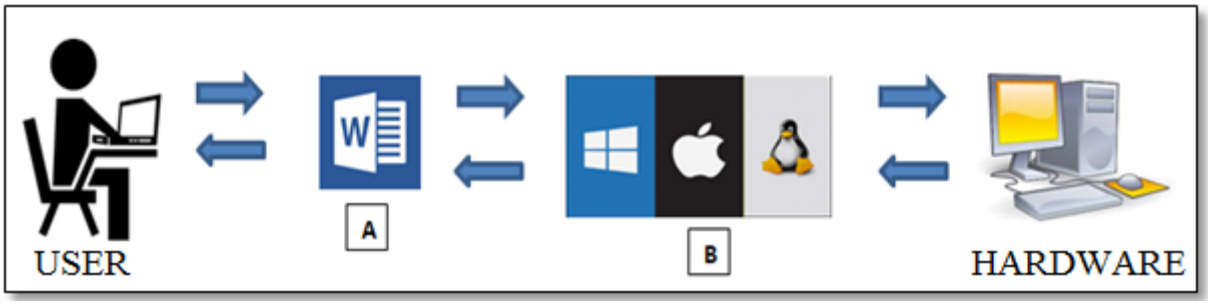
Skill level 1	
1	
0	
NR	

2. Explain the importance of the early inventions of PCs to the development of these tools (electronic tools).

Skill level 3	
3	
2	
1	
0	
NR	

QUESTION TWO: **COMPUTER SYSTEM**

The diagram below shows symbols that represent the interactions between the components within a computer system. Use the diagram to answer the questions that follow.



1. Name the components labelled **A** and **B**.

A : _____

B: _____

Skill level 1	
1	
0	
NR	

2. Describe the functions of the components labelled.

a. **A**: _____

_____

_____

_____

_____

_____

Skill level 2	
2	
1	
0	
NR	

b. **B**: _____

_____

_____

_____

_____

_____

Skill level 2	
2	
1	
0	
NR	

3. Explain the relation between the major functions of the different components of a computer system.

Skill level 3	
3	
2	
1	
0	
NR	

4. One of the vital hardware components of a PC is “DATA BUSES”.

   Briefly outline its major functions.

Skill level 2	
2	
1	
0	
NR	

5. Other HARDWARE components are also known as peripheral devices: such as mice and keyboards.

   a. State the technology behind a wireless optical mouse.

Skill level 1	
1	
0	
NR	

b. Explain the technologies behind computer keyboards.

_____

_____

_____

_____

_____

_____

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_____

_____

_____

_____

_____

Skill level 3	
3	
2	
1	
0	
NR	

6. "A Computer system can only be most useful when all the components are all working properly. Sometimes problems happen especially when the computer boots up."

State **ONE** (1) of the problems when booting up a PC.

_____

_____

_____

Skill level 1	
1	
0	
NR	

QUESTION THREE: ONLINE RESOURCES

Prepare a data-networking plan by answering/completing the following networking concepts.

1. State **ONE** (1) key feature of a network topology.

_____

_____

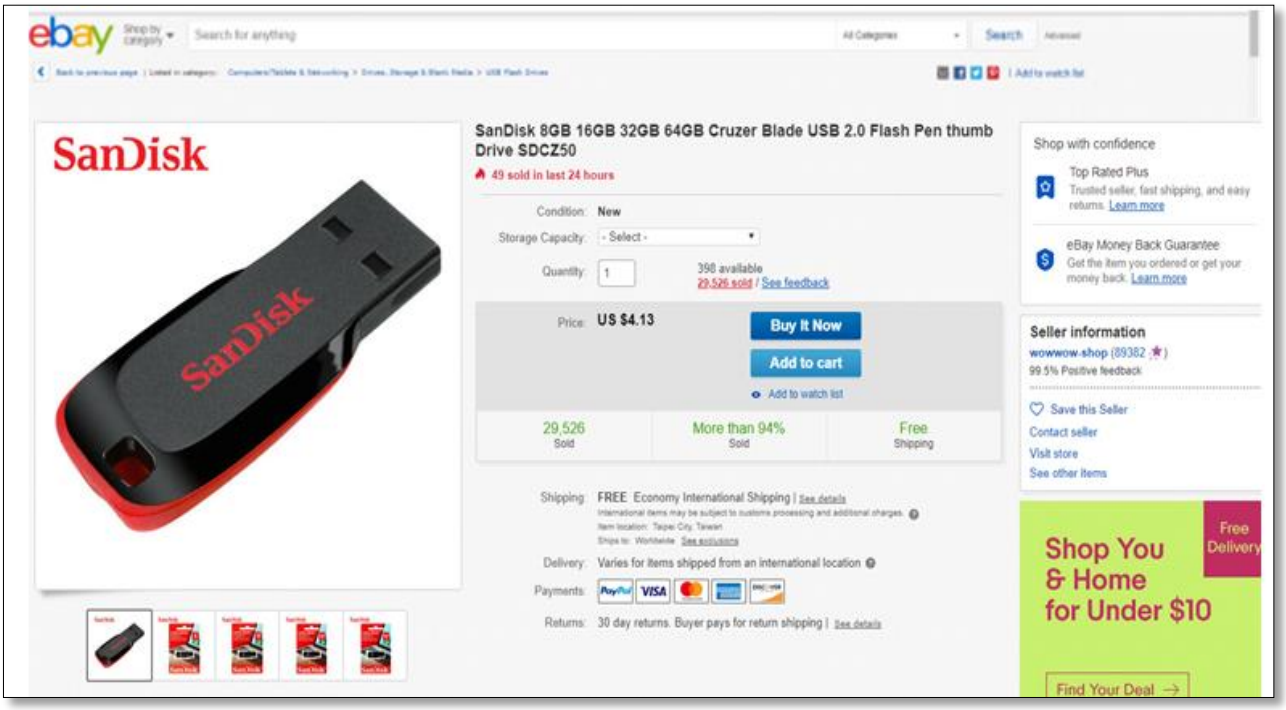
_____

Skill level 1	
1	
0	
NR	

2. Sketch a diagram showing ALL basic network devices as an organised connected data network.

Skill level 3	
3	
2	
1	
0	
NR	

3. Study the e-service site below and answer the questions that follow.



a. State **ONE** (1) benefit of using e-bay service.

Skill level 1	
1	
0	
NR	

b. Analyse the E-Bay site shown above.

Skill level 3	
3	
2	
1	
0	
NR	

QUESTION FOUR: COMPUTER APPLICATIONS

Figure 1 below is a word-processing passage that you can use to answer the question that follows.

Figure 1: Philosophy Statement

LEARN As a teacher, we tend to learn new things every day even though we teach the same lesson and contents every year. In learning, all students have different abilities; some learn more verbally, some in actions and many other learning styles. Progressivism is one of the philosophies that I've chosen to work with in achieving my goal where I use experimental methods such as lab practical which students use the programs in the computers to complete a particular assessment or exercise. In the school that I'm currently teaching in, most of the students get to learn better when they are in action so I usually give them an open group discussions, game, debate and not only that they learn more about the contents and work towards achieving the learning outcomes but also it develop a good relationship amongst them and also with me as their teacher. With those that learn through verbally usually the quite ones in the class so I go one to one with them so we can discuss the activities that is given and most importantly for them to feel important, that their opinions and ideas is vital. Existentialism I believe that is being practiced here where learning is self-paced for each student and as the educator I have to remain non-judgmental with their opinions and monitoring them closely. Furthermore, these

1. Outline some of the common word processing features that can be applied in the passage.

Skill level 2	
2	
1	
0	
NR	

Figure 2 below is an extract from a worksheet excel application. Use the extract to help you answer the question that follows.

Figure 2: Employee Profile

L22

	A	B	C	D	E	F	G
1	ProfileID	First Name	Last Name	DateOfBirth	Village	Salary	Annual Salary
2	1001	Seini	Latu	10-Mar-89	Tokomololo	?	?
3	1002	Sione	Halatoafa	01-Dec-99	Lomaiviti	1800	?
4	1003	'Ana	Pouvalu	10-Oct-93	Tatakamotonga	2400	?

2. Explain the benefits of using a spreadsheet application.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Skill level 3	
3	
2	
1	
0	
NR	

Figure 3 below is an extract from a database management system. Apply your understanding on the extract to answer the question that follows.

Figure 3: Students Profile

All Acce...

Search...

Tables

Students...

Queries

Students...

Forms

Students...

Students Profile

Student ID	Student FirstName	Student LastName	Phone Number	Village	Date of Birth	Click to Add
IS1001	Ana	Mafi	23303	Longolongo	6/6/2016	
IS1002	Semisi	Langi	20000	Maufanga	10/8/1998	
IS1003	Loata	Misi	7789909	Pea	11/9/1989	
IS1004	Soane	Toa	7745678	Haateiho	4/23/1990	
IS1005	Siale	Sekona	7715505	Hofoa	10/20/1990	
IS1006	Ana	Mafi	24567	Lavenga	11/11/2000	

3. State the purpose of using a relational database.

_____

_____

Skill level 1	
1	
0	
NR	

QUESTION FIVE: DESIGN APPLICATION

Answer the following questions to prepare you for a job interview for the position of "media design" for Digicel.

1. State any known issue with a graphic design project that you're familiar with.

_____

Skill level 1	
1	
0	
NR	

2. Name a tool that you can use for designing graphics.

_____

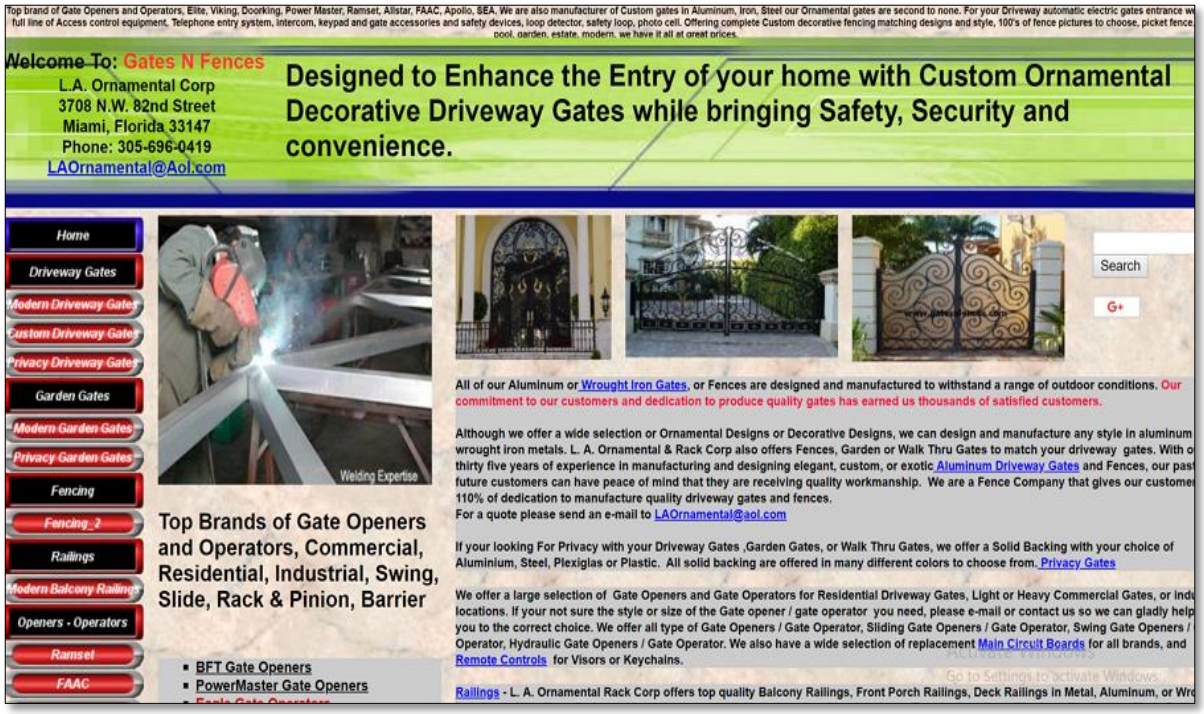
Skill level 1	
1	
0	
NR	

3. State a web-design requirement for Digicel.

_____

Skill level 1	
1	
0	
NR	

4. If provided with a company homepage as shown below, evaluate and offer effective design recommendations.



Skill level 4	
4	
3	
2	
1	
0	
NR	

QUESTION SIX: COMPUTATIONAL THINKING AND PROGRAMMING

1. Perform the following arithmetic operations in binary. (***Show ALL working)***

```
    1 0 1 1          1 1 0 1 1
+     1 0 1      -       1 1 0 1
-----------        -----------
-----------        -----------
```

Skill level 2	
2	
1	
0	
NR	

2. Display the appropriate truth table for the following expressions.

   a. A AND B

   b. A OR B

Skill level 2	
2	
1	
0	
NR	

3. Draw the Logic gate for Y= A+B.

Skill level 1	
1	
0	
NR	

4. Define the term ***debugging*** in programming.

Skill level 1	
1	
0	
NR	

5. Name **ONE** (1) type of programming error.

Skill level 1	
1	
0	
NR	

6. Write down a simple algorithm as solution for the problem given below.

> ***Determine whether the candidate is eligible to apply for a scholarship. If the GPA is greater than or equal to 2.5 then the candidate can apply, otherwise try again next time.***

Skill level 2	
2	
1	
0	
NR	

QUESTION SEVEN: SAFE HANDLING OF PC

To install a new data network for your school, prepare a basic safety/security note for your network by answering the following questions.

1. Name **ONE** (1) security issue that can affect your network.

_____

Skill level 1	
1	
0	
NR	

2. Give **ONE** (1) security measure that can be used to protect your data network.

_____

Skill level 1	
1	
0	
NR	

3. State **ONE** (1) security measure that is used to protect PCs within your network.

_____

Skill level 1	
1	
0	
NR	

4. Explain the effect of common safety conditions on PCs within your network.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Skill level 3	
3	
2	
1	
0	
NR	

QUESTION EIGHT: CAREERS IN ICT

ICT jobs will continue to rise globally. Answer the following questions to show how well you know about the roles in ICT.

1. State **ONE** (1) important characteristic required of an ICT professional.

_____

_____

_____

Skill level 1	
1	
0	
NR	

2. Describe the main responsibilities of the following ICT roles.

   a. system analyst

_____

_____

_____

_____

_____

_____

Skill level 2	
2	
1	
0	
NR	

   b. software developer

_____

_____

_____

_____

_____

_____

Skill level 2	
2	
1	
0	
NR	

QUESTION NINE: ETHICAL ISSUES

A local politician is asking for your support by responding to the following questions as he prepares for another parliament debate on ICT and ethical issues.

1. State **ONE** (1) ethical issue with corporate confidentiality in ICT.

Skill level 1	
1	
0	
NR	

2. State **ONE** (1) ethical concern with the growing use of the Internet.

Skill level 1	
1	
0	
NR	

3. Outline some effective measures that can be used locally to address the growing ethical concerns in ICT.

Skill level 2	
2	
1	
0	
NR	

QUESTION TEN: ENVIRONMENTAL ISSUES

New innovations in ICT continue to affect our Islands both positively and negatively. The environment is facing the negative effect of ICT. Show your understanding of such effects and what can be done by responding to the questions that follow.

Skill level 1	
1	
0	
NR	

1. Identify **ONE** (1) ICT development issue that affects the local environment.

_____

2. Outline the major concerns with electronic wastes. (e-waste)

_____
_____
_____
_____
_____

Skill level 2	
2	
1	
0	
NR	

3. Explain the major components for a sustainable proposal to reduce the impact of e-waste.

_____
_____
_____
_____
_____
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_____
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_____
_____
_____

Skill level 3	
3	
2	
1	
0	
NR	

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