

MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA SCHOOL CERTIFICATE

2020

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	6
TWO	COMPUTER SYSTEM	7
THREE	ONLINE RESOURCES	5
FOUR	COMPUTER APPLICATIONS	8
FIVE	DESIGN APPLICATION	6
SIX	COMPUTATIONAL THINKING AND PROGRAMMING	12
SEVEN	SAFE HANDLING OF PC	10
EIGHT	CAREERS IN ICT	6
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 contain pages **2-15** in the correct order and that none of the pages is blank.

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

QUESTION ONE:**DIGITAL TECHNOLOGIES**

The “At sign” as shown below was invented in 1971 by Ray Tomlinson with the intention to use in emails as a character to separate the host from user.

This is an example of an Invention in the early years of the Internet.



Figure 1 – The “At sign”

1. State ANOTHER important invention in the early years of the Internet.

Skill level 1	
1	
0	
NR	

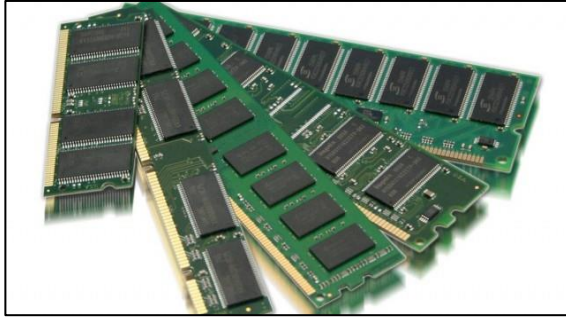
2. Outline the importance of the early inventions of PCs to the development of the internet.

Skill level 2	
2	
1	
0	
NR	

3. Name a communication device of a PC.

Skill level 1	
1	
0	
NR	

4. Shown below are Primary Storage parts. Outline their main functions.



Skill level 2	
2	
1	
0	
NR	

QUESTION TWO:

COMPUTER SYSTEM

1. *Use your understanding of operating a PC to answer the questions that follow.*

- i. A PC must have an OS and applications to fully operate. State the main function of an Operating System (System Software).

Skill level 1	
1	
0	
NR	

- ii. Briefly explain the basic function of the Windows OS for managing PC resources.

Skill level 3	
3	
2	
1	
0	
NR	

- iii. Sometimes it's frustrating when a PC refuses to boot-up due to several reasons such as **OS incomplete boot up** or **blank screen**. Explain the causes of boot-up problems.

Skill level 3	
3	
2	
1	
0	
NR	

QUESTION THREE:

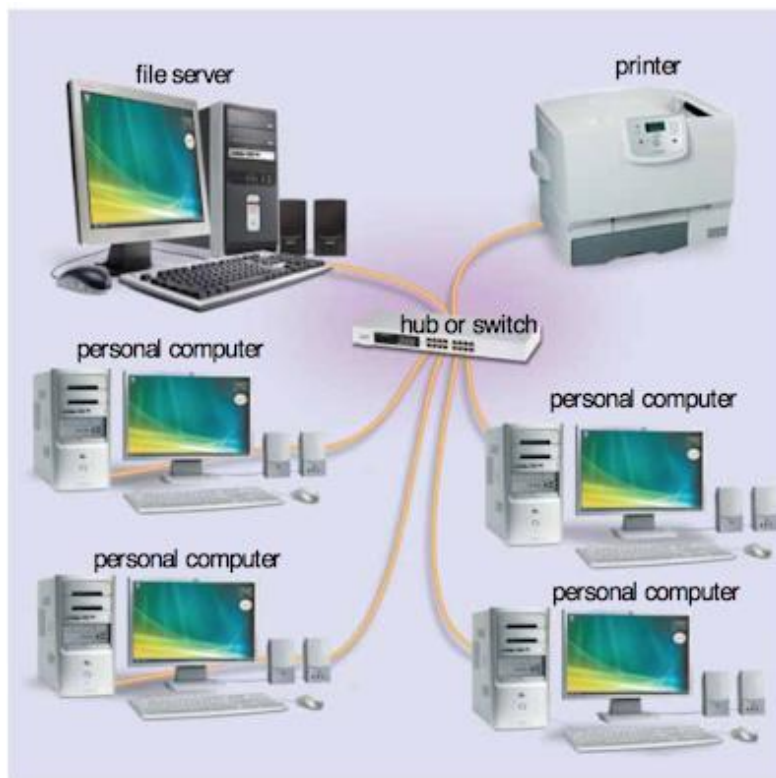
ONLINE RESOURCES

1. *The improvements in Data communication or networking today allow us to experience sharing of information and online resources efficiently. Present your understanding of data communication by answering the following questions.*

Skill level 1	
1	
0	
NR	

- i. State a component of data communication.

- ii. The diagram below illustrates the network arrangement for **Pearson Specter** law firm. Evaluate the type of network topology presented on the diagram.



Skill level 4	
4	
3	
2	
1	
0	
NR	

QUESTION FOUR:**COMPUTER APPLICATIONS**

1. To use spreadsheet effectively is about knowing the use of common and advanced features of the application. State a common feature of a spreadsheet application that you know.

Skill level 1	
1	
0	
NR	

2. The Ministry of Health is hoping to develop a Database in preparation for an outbreak of COVID-19 here in Tonga. Evaluate a full database requirement for the Ministry of Health.

Skill level 4	
4	
3	
2	
1	
0	
NR	

3. Use the table below to help you answer the questions that follow.

StudentProfile			
StudentID	FirstName	LastName	DateOfBirth
1001	Teri	Davis	09/10/1990
1002	Loius	Ramsy	11/11/1998
1003	Donald	Green	01/01/1990

- i. Write a basic SQL command that can be used to retrieve data from the table.

Skill level 1	
1	
0	
NR	

- ii. Outline the purposes of the SQL command shown below if it's to be executed using the table above.

```
DELETE FROM STUDENTPROFILE  
WHERE FIRSTNAME = 'TERI';
```

Skill level 2	
2	
1	
0	
NR	

QUESTION FIVE:**DESIGN APPLICATION**

1. *As a new media designer for the Ministry of Internal Affairs, briefly EXPLAIN the issues regarding the given designs.*

- i. Graphical design.



Skill level 3	
3	
2	
1	
0	
NR	

ii. Webpage Design.



Source - <https://neilpatel.com/blog>

Skill level 3

3

2

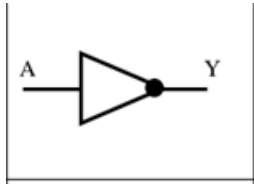
1

0

NR

QUESTION SIX: COMPUTATIONAL THINKING AND PROGRAMMING

1. Use the logic gate below to display the results of its Boolean/truth table.



A	Y
0	
1	

Skill level 1	
1	
0	
NR	

2. Use the space provided to draw the **AND** and the **OR** gate.

Skill level 2	
2	
1	
0	
NR	

3. Write down the correct algorithm for a basic computer program to determine inputted numbers whether they are even or odd numbers.

Skill level 2	
2	
1	
0	
NR	

4. If you want to create a computer program, you must follow the main stages of programming. Use your understanding of the stages of programming to answer the following questions.

- i. Outline the main stages of computer programming.

Skill level 2	
2	
1	
0	
NR	

- ii. As a computer programmer, briefly explain the benefits of following the main stages of programming.

Skill level 3	
3	
2	
1	
0	
NR	

5. Define the following computer programming concepts.

- i. Software development tool -

-
-

Skill level 1	
1	
0	
NR	

- ii. Syntax -

-
-

Skill level 1	
1	
0	
NR	

QUESTION SEVEN:**SAFE HANDLING OF PC**

1. *Prepare a talk to a group of young students on computer safety, data and network security issues (the effect and measures) using your responses to the following questions as your main talking points.*

- i. Power surges are common conditions that can cause problems to a PC. Describe the effect of power surges on a PC

Skill level 2	
2	
1	
0	
NR	

- ii. A computer virus is a common safety concern for data networks. Outline the effects of viruses on data networks.

Skill level 2	
2	
1	
0	
NR	

- iii. Data is so important to be safe and protected. Describe the basic concepts of data security.

Skill level 2	
2	
1	
0	
NR	

- iv. State a security measure to protect user data.

Skill level 1	
1	
0	
NR	

- v. Explain safety measures that can be effectively used to protect data networks.

Skill level 3	
3	
2	
1	
0	
NR	

QUESTION EIGHT:**CAREERS IN ICT**

1. *Present your understanding of ICT jobs by stating the main responsibility of a(n).*

i. Network Engineer.

Skill level 1	
1	
0	
NR	

ii. ICT project Manager

Skill level 1	
1	
0	
NR	

iii. Discuss the major concerns facing ICT professionals in developing countries such as Tonga.

Skill level 4	
4	
3	
2	
1	
0	
NR	

QUESTION NINE:

ETHICAL ISSUES

1. *Show your support for the importance of computer ethics in the workplace by responding correctly to the following questions.*

- i. Define the term “*computer ethics*”.

Skill level 1	
1	
0	
NR	

- ii. Explain the effects of unethical behaviour in ICT.

Skill level 3	
3	
2	
1	
0	
NR	

QUESTION TEN:**ENVIRONMENTAL ISSUES**

1. *The diagram below illustrates the concerns with the global issue of ICT waste (e-waste). Provide some important information using your responses to the following questions as part of an awareness programme regarding the effect of ICT on the physical environment.*



- i. Explain the major concerns with e-waste.

Skill level 3	
3	
2	
1	
0	
NR	

- ii. Provide an important point that can be included in a sustainable plan to reduce the impact of e-waste

Skill level 1	
1	
0	
NR	

- iii. Outline some common measures that can help reduce the effect of ICT on the environment.

Skill level 2	
2	
1	
0	
NR	