

MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA FORM SIX CERTIFICATE 2022

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 **NINE SECTIONS** and is out of 70 weighted scores.

SECTION	STRANDS	TOTAL SKILL LEVEL
ONE	IMPORTANT TRENDS IN ICT	1
TWO	INFORMATION SYSTEMS (IS)	9
THREE	ICT INFRASTRUCTURE	14
FOUR	DIGITAL DESIGN	11
FIVE	COMPUTER PROGRAMMING	15
SIX	MICROPROCESSOR PROGRAMMING	3
SEVEN	SAFE PRACTICES IN ICT	7
EIGHT	SOCIAL ISSUES	6
NINE	ENVIRONMENTAL ISSUES	4
	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 have been deliberately left blank.

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

SECTION ONE: IMPORTANT TRENDS IN ICT

The Government of Tonga understands that despite the many benefits of ICT, there are notable concerns to consider.

1. State **ONE** (1) of the known concerns that the Government is facing in their effort to promote the important trends in ICT.

Skill level 1	
1	
0	
NR	

-

2. A big part of any school embracing technology today is with the use of School Management Systems. Some of our schools here in Tonga have already used this new development and have witnessed the benefits of it.

-

Skill level 3	
3	
2	
1	
0	
NR	

3. Briefly discuss the major types and key features of an IS. You can use examples from a local school.

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Skill level 4	
4	
3	
2	
1	
0	
NR	

1. What is an ICT Infrastructure?

Skill level 1	
1	
0	
NR	

- [illegible]

Skill level 4	
4	
3	
2	
1	
0	
NR	

- b. Present the reasons for proposing the use of a router and wireless access point devices by;

- i. Stating an important feature of a router.

Skill level 1	
1	
0	
NR	



- ii. Briefly explaining the need for wireless access points.

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Skill level 3	
3	
2	
1	
0	
NR	

3. The final part of your proposal is to present your software selections by;

a. Defining open source software

Skill level 1	
1	
0	
NR	

b. Outlining the known characteristics of proprietary software

Skill level 2	
2	
1	
0	
NR	

c. Outlining the concerns with downloading and installing software from the internet.

Skill level 2	
2	
1	
0	
NR	

SECTION FOUR:**DIGITAL DESIGN**

Digital Media is a key part of our daily lives today, transforming our social habits, economies, education, health and our behavior. Present your understanding of some of the digital media tools and concepts by responding correctly to the following questions.

1. What is digital media?

Skill level 1	
1	
0	
NR	

2. One of the known media devices commonly used today is a Digital Video Recorder (DVR).

State a key function of a DVR.

Skill level 1	
1	
0	
NR	

3. **Briefly explain** the following digital media concepts that are driving the transformation that we are facing today;

- a. The elements of good graphic design.

Skill level 3	
3	
2	
1	
0	
NR	

b. The elements of good website design.

Skill level 3	
3	
2	
1	
0	
NR	

c. The process involved in designing of a website.

Skill level 3	
3	
2	
1	
0	
NR	

SECTION FIVE: COMPUTER PROGRAMMING

1. Hexadecimal is one of the four most common number system used to represent data.

a. Define Hexadecimal.

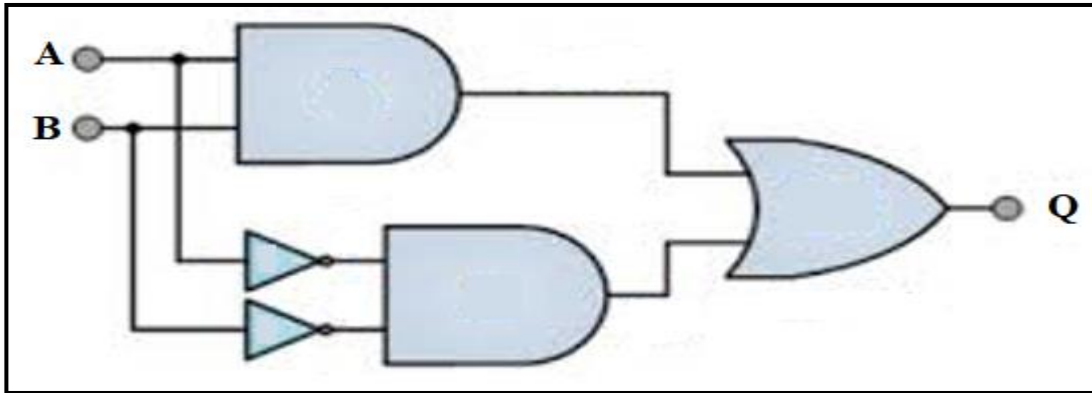
Skill level 1	
1	
0	
NR	

b. Convert 2766 decimal to binary and then to hexadecimal.

Skill level 2	
2	
1	
0	
NR	

2. A Truth Table shows the output values for a logic circuit based on the set of values input in **A** and **B**.

Complete the Truth Table for the logic circuit drawn below.



Input A	Input B				<u>Output = Q</u>
1	1				
1	0				
0	1				
0	0				

Skill level 3	
3	
2	
1	
0	
NR	

3. Provide the logic state of inputs (A&B) that produces an active output of a logic circuit based on the given Truth Table.

Input A	Input B		<u>Y</u>
0	0		1
0	1		1
1	0		1
1	1		0

Skill level 1	
1	
0	
NR	

4. Describe the relationship between logic gates and digital circuits.

Skill level 2	
2	
1	
0	
NR	

5. A team of young programmers in local schools are being recruited to develop a school management software. Show that you can be part of the team by responding correctly to the following programming concepts.

- a. State the purpose of programming tools in computer programming

Skill level 1	
1	
0	
NR	

- b. State your understanding of programming bugs.

Skill level 1	
1	
0	
NR	

- c. Briefly discuss the process of computer programming.

Skill level 4	
4	
3	
2	
1	
0	
NR	

SECTION SIX: MICROPROCESSOR PROGRAMMING

Use your understanding of microprocessor programming to answer the following questions.

1. What is a machine language?

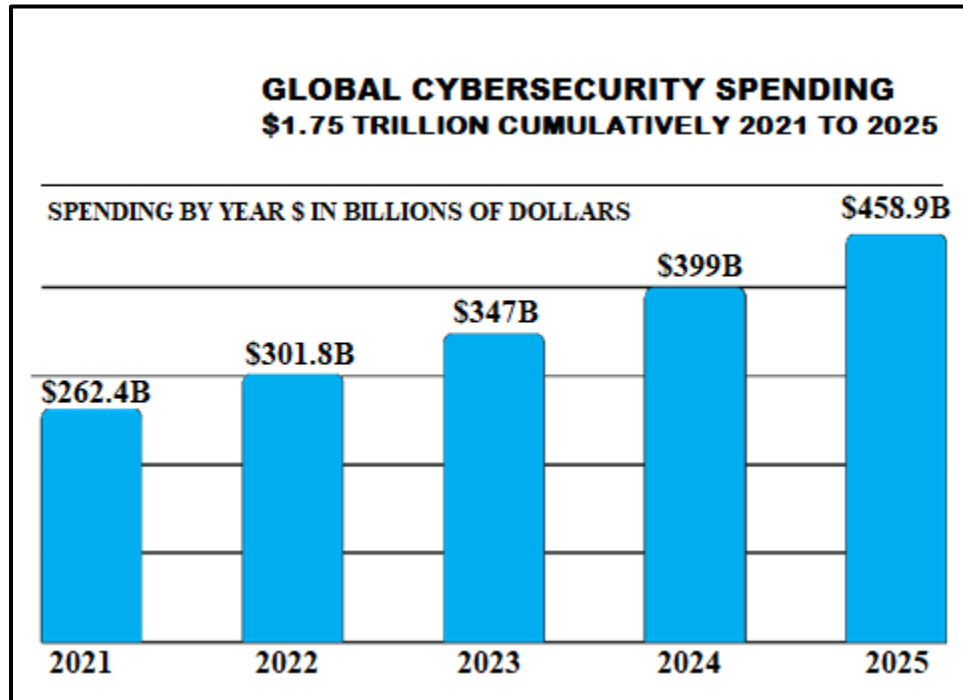
Skill level 1	
1	
0	
NR	

2. Outline the major components in controlling of a programmable microprocessor.

Skill level 2	
2	
1	
0	
NR	

SECTION SEVEN:**SAFE PRACTICES IN ICT**

Cyber Security is a Global concern as shown in the graph below. Study the spending trends to help you answer the following questions.



1. What is Cyber Security?

Skill level 1	
1	
0	
NR	

2. Explain why Cyber Security is a major concern today.

Skill level 3	
3	
2	
1	
0	
NR	

3. Present an ICT safety guideline to be followed by your school to minimize the concerns with Cyber Security.

Skill level 3	
3	
2	
1	
0	
NR	

SECTION EIGHT:**SOCIAL ISSUES**

The diagram below illustrates two of the most common issues facing our schools today (Plagiarism & Cyber-bullying). Demonstrate your understanding of the issues by responding correctly to the questions that follow.

Plagiarism**Cyber Bullying**

1. State a known issue in ICT regarding plagiarism.

Skill level 1	
1	
0	
NR	

2. Outline the growing concerns in ICT regarding the issue of Cyber Bullying.

Skill level 2	
2	
1	
0	
NR	

3. Explain the effects of unethical behavior in ICT on our Culture.

Skill level 3	
3	
2	
1	
0	
NR	

SECTION NINE: ENVIRONMENTAL ISSUES

The latest media release from the government have the following information.

“Despite the environmental concerns with the increasing use of ICT here in Tonga, the Government is exploring opportunities to use the same technologies to combat the issues with the environment”

Show that you support the statement with your responses to the following questions.



1. Name **ONE** (1) known positive impact of the growing use of ICT in relation to climate change.

Skill level 1	
1	
0	
NR	

2. Explain effective ways that have been implemented locally to minimize the growing environmental concerns with ICT.

Skill level 3	
3	
2	
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NR	

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