

MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

TONGA NATIONAL FORM SEVEN 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	FUTURE TRENDS IN ICT	5
TWO	INFORMATION SYSTEMS (IS)	9
THREE	ICT INFRASTRUCTURE	11
FOUR	DIGITAL DESIGN	11
FIVE	COMPUTER PROGRAMMING	6
SIX	MICROPROCESSOR PROGRAMMING	9
SEVEN	SAFE PRACTICES IN ICT	6
EIGHT	SOCIAL ISSUES	6
NINE	ENVIRONMENTAL ISSUES	7
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 space 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 page is blank.

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

Skill level 3	
3	
2	
1	
0	
NR	

SECTION TWO:**INFORMATION SYSTEMS (IS)**

The Government of Tonga is seeking your help in promoting the use of **Information Systems (IS)** by Government agencies as part of the Tonga Digital Government Support Project. Use your responses to the following questions to convince the Chief Executive Officers (CEOs) of Government agencies to use IS applications.

1. Outline some of the key benefits of **IS** experiences in Government.

	Skill level 2	
	2	
	1	
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2. Discuss the important features of a specific **IS** application that you're familiar with.

	Skill level 4	
	4	
	3	
	2	
	1	
	0	
	NR	

3. Briefly explain the key concerns that you may need to address when implementing **IS** applications in Pacific Island Countries (PICs).

[illegible]

Skill level 3	
3	
2	
1	
0	
NR	

SECTION THREE:**ICT INFRASTRUCTURE**

1. The Tonga Development Bank (TDB) is ready to upgrade its Data Network to include its offices in Vava'u and Ha'apai and also provide Wifi connectivity. As a network expert hired by the bank, present to the bank's Management your understanding of key items to be considered for this Infrastructural upgrade using your responses to the following questions.

- a. State a key feature for each of the following type of networks to be installed by the Bank.

- i. Wide Area Network (WAN).

Skill level 1	
1	
0	
NR	

- ii. Wireless network.

Skill level 1	
1	
0	
NR	

- b. Outline the key strengths of Open Source Software for the bank.

Skill level 2	
2	
1	
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- c. With the WAN and Open Source software, organize the remaining ICT infrastructural requirements as part of your report to the Bank.

Skill level 3	
3	
2	
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- d. Briefly discuss the challenges that can possibly affect the implementation of the Bank's ICT infrastructure.

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or other markings on the paper.

Skill level 4	
4	
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SECTION FOUR: DIGITAL DESIGN

Part of the Tonga Development Bank's ICT infrastructural upgrade is its website. The Bank's ICT team recommends that their new website must;

- include an audio message from the Director
- use CSS
- be a database-driven website
- be validated.

The Director of the Bank is asking for your help in responding to the following items to clarify the above recommendations.

1. Outline the key requirements for creating an audio file for the website.

Skill level 2	
2	
1	
0	
NR	

2. Outline the link between CSS and HTML in web development.

Skill level 2	
2	
1	
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3. For a Database-driven website, briefly discuss the interaction process between the website and its purpose-built database.

Skill level 4	
4	
3	
2	
1	
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NR	

4. Briefly explain the purpose of validating a website for the Bank.

Skill level 3	
3	
2	
1	
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SECTION FIVE:**COMPUTER PROGRAMMING**

1. Use your understanding of the Data Representation concept to complete the following questions.

- a. Define Unicode.

Skill level 1	
1	
0	
NR	

- b. Convert the given binary number to its decimal and hexadecimal representation.

Binary	Decimal	Hexadecimal
1110111	i.	ii.
<i>Show your work here.</i>		

Skill level 2	
2	
1	
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2. Part of your Internal Assessment (IA) projects is to design and write a computer program. Briefly explain the process used in designing a programming project.

Skill level 3	
3	
2	
1	
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SECTION SIX: MICROPROCESSOR PROGRAMMING

1. Microprocessors are small micro-chips that can be found on almost digital devices from computers to smartphones to household appliances and automated systems. Share your understanding of this technology by responding to the following questions.

- a. Name a major component of a microprocessor.

Skill level 1	
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- b. Outline the basic interaction within a microprocessor's major components.

Skill level 2	
2	
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2. The concept of microprocessor programming has enabled the development of embedded devices with microprocessors that can be programmed to respond automatically to possible changes in its physical environment. Demonstrate your understanding of the concept by answering the following questions.

- a. Define embedded microprocessor.

Skill level 1	
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NR	

Skill level 3	
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1	
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NR	

- | Skill level 2 | |
|---------------|--|
| 2 | |
| 1 | |
| 0 | |
| NR | |

Matangi Tonga, August 28, 2020

1. The effects of viruses and other forms of worms on ICT systems.

Skill level 3	
3	
2	
1	
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NR	

Skill level 3	
3	
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1	
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SECTION EIGHT:**SOCIAL ISSUES**

Cyber-crime is a serious issue for local authorities and they are preparing a public awareness campaign together with a preventative plan. Help the local authorities with their preparations using your responses to the following.

1. Outline some of the known cyber-crimes already reported by local authorities or internationally.

	Skill level 2	
	2	
	1	
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2. Develop a preventative plan to be used by local authorities to minimize the impact of cyber-crimes.

	Skill level 4	
	4	
	3	
	2	
	1	
	0	
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SECTION NINE: ENVIRONMENTAL ISSUES

1. Demonstrate your understanding of the major environmental effects of ICT by responding correctly to the following questions.

- a. State a physical waste problem that ICT creates.

Skill level 1	
1	
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NR	

- b. Outline the environmental impacts of the demand for electricity caused by the growing use of ICT.

Skill level 2	
2	
1	
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2. Despite the growing environmental concerns of Digital technologies, major ICT companies around the world are developing sustainable technologies and use of modern technologies to combat the effects. Share your understanding of these developments by responding to the following questions.

- a. State an example of a sustainable technology.

Skill level 1	
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NR	

Skill level 3	
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