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S	TUD	ENT	ENR	OLM	ENT	NUM	BER	(SEN	I)

TONGA FORM SIX 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 **NINE QUESTIONS** and is out of 70 Weighted score.

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QUESTIONS	TOPICS	TOTAL SKILL LEVEL
ONE	IMPORTANT TRENDS IN ICT	4
TWO	INFORMATION SYSTEMS (IS)	5
THREE	ICT INFRASTRUCTURE	17
FOUR	DIGITAL DESIGN	5
FIVE	COMPUTER PROGRAMMING	17
SIX	MICROPROCESSOR PROGRAMMING	4
SEVEN	SAFE PRACTICES IN ICT	5
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 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 17-19 has been deliberately left blank.

QUESTION ONE: IMPORTANT TRENDS IN ICT

Shown below are known changes (shifts) in Small and Medium-sized Enterprises (SME) Market resulting from ICT trends.

Use the Information below to answer the questions that follow.

From		To
Heavyweight		Lightweight
Acquisition		Subscription
Individual work	\Rightarrow	Collaboration
Data silos	\Rightarrow	Data anywhere
Fixed office	-	Flexible office
Desktop-fixed device	\Rightarrow	Bring your own device
Customer service		Customer engagement

Source: http://kotelnikov.biz/coach/ict_trends_market_shifts.html

1	State an example of ICT.	Skill lev	vel 1
1.	State all example of let.	1	
		0	
		NR	
2.	Explain the contributions made by existing ICT trends to our local economy	7.	
		Skill le	vel 3
		3	
		2	

1 0 NR

QUESTION TWO: INFORMATION SYSTEMS (IS)

"To implement a computer Information System (IS) for a school can bring lots of benefits". Present your understanding of IS by;

		Skill	lev
i.	Information	1	T
		0	
		NR	
ii.	System.	Skill	lev
11.	System.	1	
		0	
		NR	
Ex]	plain the role and use of IS in a school environment.		
Exp	plain the role and use of IS in a school environment.		
Exj	plain the role and use of IS in a school environment.	Skill	lev
Exj	plain the role and use of IS in a school environment.	Skill 3	lev
Exj	plain the role and use of IS in a school environment.		lev
Exj	plain the role and use of IS in a school environment.	3	lev
Ex]	plain the role and use of IS in a school environment.	3	lev

QUESTION THREE: ICT INFRASTRUCTURE

A Local Company is hoping to implement an ICT Infrastructure to improve the efficiency of its core services.

Provide some relevant information to the company manager by answering the questions that follow.

1.	Define ICT Infrastructure.	Skill le	vel 1
1.	Define for filliastructure.	1	
		0	
		NR	
2.	Explain the purpose and key components of an ICT infrastructure.		
		Skill le	vel 3
		3	
		2	
		1	
		0	
		NR	
3.	State ONE (1) type of data communication network that can be used by the company.	Skill lev 1 0	vel 1
		NR	

4. The network will be using both cable and wireless technologies.

Clearly state a basic feature of:

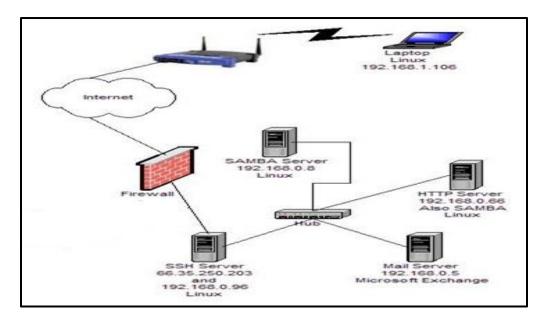
i. cable technology

Skill lev	vel 1
1	
0	
NR	

ii. wireless technology

Skill level 1			
1			
0			
NR			

5. One very important device required in the network is a Firewall which is shown in the diagram below.



Explain the main requirement for a Network Firewall.

Skill level 3	
3	
2	
1	
0	
NR	

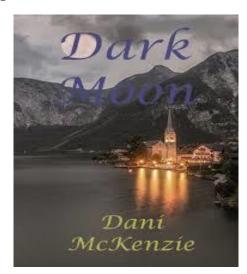
Explain the main concerns when downloading and installing a software from the internet. Skill level 3	5.	The last stage for the implementation to be complete, is to download the required software from the internet.		
3 2 1 0 NR				
3 2 1 0 NR				
3 2 1 0 NR				
2 1 0 NR 7. Provide a full report as part of the information required by the company manager, by briefly discussing the need for this company to have a proper ICT infrastructure. Skill level 4 3 2 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Skill le	vel 3
T. Provide a full report as part of the information required by the company manager, by briefly discussing the need for this company to have a proper ICT infrastructure. Skill level 4 3 2 1 1 1 1 1 1 1 1 1			3	
Provide a full report as part of the information required by the company manager, by briefly discussing the need for this company to have a proper ICT infrastructure. Skill level 4 3 2 1			2	
Provide a full report as part of the information required by the company manager, by briefly discussing the need for this company to have a proper ICT infrastructure. Skill level. 4			1	
7. Provide a full report as part of the information required by the company manager, by briefly discussing the need for this company to have a proper ICT infrastructure. Skill level 4 3 2 1			0	
manager, by briefly discussing the need for this company to have a proper ICT infrastructure. Skill level			NR	
4 3 2 1				
			Skill le	vvel 4
1				vel 4
			4	vel 4
			3	vel 4
NR			4 3 2 1	vel 4

QUESTION FOUR: DIGITAL DESIGN

Study the picture below and answer the questions that follow.

1. A request by a publishing company to use their book cover below to design a better new cover for their new book.

Use the book cover below and outline the elements of a good graphical design you could use for an improvement.



Skill lev	vel 2
2	
1	
0	
NR	

2. The publishing company also requested that you design a website for them.

Explain the elements of a good website design.

Skill lev	vel
3	
2	
1	
0	
NR	

QUESTION FIVE: COMPUTER PROGRAMMING

a.	Control structures		
		Skill le	vel 1
		1	
		0	
		NR	
L.	Data transa		
b.	Data types	Skill lev	/el 1
		1	
		0	
		NR	
c.	Syntax		
		Skill le	vel 1
		1	
		0	
		NR NR	
Def	fine the following programming terms;		
DC	me the following programming terms,		
a.	Program design	Change	
		Skill let	vei 1
		1	
		0	
		0 NP	
		0 NR	
h	Program hijgs		
b.	Program bugs		vel 1
b.	Program bugs	NR	/el 1
b.	Program bugs	NR Skill lev	vel 1

3.	Convert the hexadecimal value CAB to decimal.

	Skill level 1	
_	1	
	0	
_	NR	

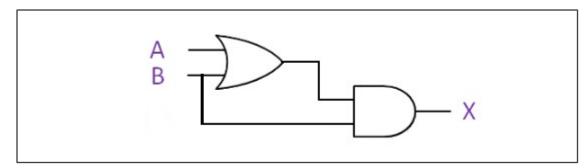
4. Describe the relationship between logic gates and digital circuits.

	Skill lev	vel 2
	2	
	1	
_	0	
	NR	

5. Write the pseudocode that can present the solution for finding the smaller number between 2 numbers.

Skill level 2	
2	
1	
0	
NR	

6. Use the logic gate given below to complete the truth table.



A	В	
0	0	
0	1	
1	0	
1	1	

Skill le	vel 3
3	
2	
1	
0	
NR	

7. Study the problem below then create a full diagrammatical design model

as the solution to the problem.

The Problem: Your teacher asked you to write a program to prompt for user to enter One number (mark) between zero (0) and one hundred (100) then the program will output a grade depending on the mark given. . Grades given ranges from Distinction for the highest mark to Beginner as the lowest mark.

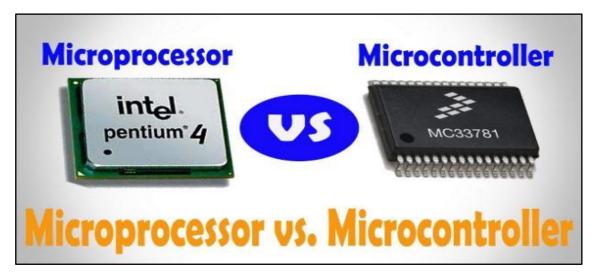
A "*Distinction*" grade is given if mark >=93
An "*Excellent*" grade is given if mark is between 77 and 92
A "*Merit*" grade is given if mark is between 58 and 76
An "*Achieve*" grade is given if mark is between 48 and 57
A "*Beginner*" grade is given if mark <=47

The full diagrammatical design:

Skill lev	vel 4
4	
3	
2	
1	
0	
NR	
	•

QUESTION SIX: MICROPROCESSOR PROGRAMMING

Study the diagram below to help you answer the questions that follow.



Identify a common device that uses a microprocessor.	Skill le	vel 1
	1	
	0	
	NR	
Explain the main use of programmable microprocessors (microcontroller) in real life.	- - -	
	Skill level 3	
	3	
	2	
	1	
	0	

NR

QUESTION SEVEN: SAFE PRACTICES IN ICT

Prepare a presentation on Cyber-security and young children by using the diagram below and your answers to the following questions.

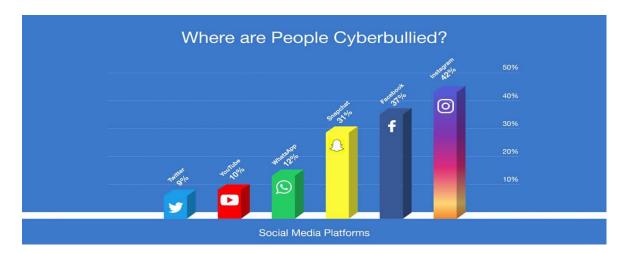


Define Cyber security.	Skill lev	vel
	1	
	0	
	NR	
State a feature of Internet security.	Skill lev	vel
	1	
	0	
	NR	
	Skill le	eve
	Skill le	·ve
		•ve
	3	eve
	2	•ve

QUESTION EIGHT:

SOCIAL ISSUES

Study the diagram below to help you answer the questions that follow.



1 ,	Outline the growing social issues in ICT regarding cyber-bullying.		Skill level 2	
1.	Outline the growing social issues in let regarding cyber-bunying.	2		
		1		
		0		
		NR		

2. Discuss the effective measures used locally and globally to minimize the impact of ethical concerns in ICT such as cyber-bullying.

Skill le	vel 4
4	
3	
2	
1	
0	
NR	

QUESTION NINE: ENVIRONMENTAL ISSUES

Technological advancement in ICT has continued to affect the environment in a negative way. Some of those are shown below. Use the diagram to help you answer the questions diagram that follow.



2. State an important point to be included in a sustainable plan to address the environmental effect of ICT.

Skill lev	vel 1
1	
0	
NR	

	Outline effective measures being implemented locally to address the Growing environmental concerns with ICT.			_
GIUW	ing environmental concerns with icr.	Skill le	Skill level 2	
		2		
		1		
		0		
		NR		
D 1	• 1			
Expla	ain known e-waste management practices			
		Skil	lev	re
		Skil 3	lev	re
			lev	re
		3	lew	/e
		3	lev	re

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