TONGA FORM SIX CERTIFICATE
2018
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 Skill Level.

<table>
<thead>
<tr>
<th>QUESTIONS</th>
<th>TOPICS</th>
<th>TOTAL SKILL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>IMPORTANT TRENDS IN ICT</td>
<td>6</td>
</tr>
<tr>
<td>TWO</td>
<td>INFORMATION SYSTEMS (IS)</td>
<td>10</td>
</tr>
<tr>
<td>THREE</td>
<td>ICT INFRASTRUCTURE</td>
<td>11</td>
</tr>
<tr>
<td>FOUR</td>
<td>DIGITAL DESIGN</td>
<td>8</td>
</tr>
<tr>
<td>FIVE</td>
<td>COMPUTER PROGRAMMING</td>
<td>6</td>
</tr>
<tr>
<td>SIX</td>
<td>MICROPROCESSOR PROGRAMMING</td>
<td>8</td>
</tr>
<tr>
<td>SEVEN</td>
<td>SAFE PRACTICES IN ICT</td>
<td>9</td>
</tr>
<tr>
<td>EIGHT</td>
<td>SOCIAL ISSUES</td>
<td>7</td>
</tr>
<tr>
<td>NINE</td>
<td>ENVIRONMENTAL ISSUES</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>70</td>
</tr>
</tbody>
</table>

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.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR BEFORE YOU LEAVE THE EXAMINATION ROOM.
QUESTION ONE: IMPORTANT TRENDS IN ICT

Showing below is a list of the top existing ICT trends that are available here in Tonga. Use the list to help you answer the questions that follow.

Top Current ICT Trends

Cloud services
e-learning
e-government
Enterprise IT
Mobile and Wifi services
Consumer IT

1. Give the meaning of ICT.

_________________________________________________________________________
_________________________________________________________________________

2. Name ONE (1) of the major concerns in promoting existing ICT trends here in Tonga.

_________________________________________________________________________
_________________________________________________________________________

3. Analyse the contributions made by the Government of Tonga in promoting existing ICT trends and other technological developments.

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Skill level 1

| 0 | 0 | NR |

Skill level 1

| 1 | 0 | NR |

Skill level 4

| 4 | 3 | 2 | 1 | 0 | NR |
Ha’afeva High School is hoping to introduce the use of Information Systems that will allow the school management to improve its daily operations. You have been asked to advice the school management about Information Systems by answering the following questions.

1. Name **ONE** (1) known type of IS.

______________________________________________________________________
______________________________________________________________________

2. State a known feature of an IS.

______________________________________________________________________
______________________________________________________________________

3. Outline possible uses of IS for Ha’afeva High School.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

4. Explain the major benefits of IS development for the school management.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

<table>
<thead>
<tr>
<th>Skill level 1</th>
<th>1</th>
<th>0</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill level 2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Skill level 3</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
5. Organise the requirements for an IS implementation at Ha’afeva High School.

<table>
<thead>
<tr>
<th>Skill level</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
QUESTION THREE: ICT INFRASTRUCTURE

1. State a type of data transmission medium in ICT.

Software whether commercial or open source can be downloaded and installed from the Internet.

2. State ONE (1) issue with downloading and installing software from the Internet.

3. Outline the key features of a Network Interface Cards (NIC).

4. Distinguish between cable and wireless technologies when using within an ICT infrastructure.
5. Open source and proprietary software have strengths and weaknesses. As an IT advisor for the Government of Tonga, you are required to make a clear justification about which software to be used by Government, either open source on proprietary.
Leading a digital media development team for a local media design company requires a good understanding of the concepts for processing graphics, audio, video and web design. Show that you can lead the design team by answering the following questions.

1. Define Digital Media.

______________________________________________________________________
______________________________________________________________________

2. Identify a type of Digital Media.

______________________________________________________________________
______________________________________________________________________

3. State ONE (1) of the main functions of an audio device (e.g. audio adapter).

______________________________________________________________________
______________________________________________________________________

4. State a key feature of a Video Processing application (software).

______________________________________________________________________
______________________________________________________________________

5. State a key feature of a graphic design application.

______________________________________________________________________
______________________________________________________________________

<table>
<thead>
<tr>
<th>Skill level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>
6. Creating a website is a process that includes designing of page layouts and graphics. State another major part of the process.

____________________________________________________________________

____________________________________________________________________

7. A close friend is publishing a book and is asking for your help to design the cover of his book. Describe the graphic design requirements for your friend’s book cover.

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
QUESTION FIVE: COMPUTER PROGRAMMING

1. State the purpose of ‘variables’ in programming.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

2. Convert the hexadecimal number \textbf{F6} to binary and from binary to decimal. (\textit{Show your working})

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

3. Explain the process of computer programming.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

Skill level 1

<table>
<thead>
<tr>
<th>Level</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>

Skill level 2

<table>
<thead>
<tr>
<th>Level</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>

Skill level 3

<table>
<thead>
<tr>
<th>Level</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>
QUESTION SIX: MICROPROCESSOR PROGRAMMING

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

1. Define 'Machine Code'.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

2. State the purpose of a high level language.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

3. Describe the purpose of a machine language.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

Skill level 1
1
0
NR

Skill level 2
2
1
0
NR
4. Analyse the main uses of programmable microprocessors in real life.
QUESTION SEVEN: SAFE PRACTICES IN ICT

You have been asked to prepare a news article about the newly established national Computer Emergency Response Team (CERT). The team will be guiding the country in ICT and Cyber security matters. Prepare your article regarding the work of CERT by EXPLAINING the following:

1. Main features of ICT security systems.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

2. Major concerns with Cyber security.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
3. Known Security standards used in ICT.

<table>
<thead>
<tr>
<th>Skill level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>
QUESTION EIGHT: SOCIAL ISSUES

The statement below is a general indication of the concerns that we have with the growing use of ICT.

“As much as information technology is important to our lives, it is facing some serious ethical challenges and it is up to the IT experts and users of information technology to be ready for these challenges.”

Karehka Ramey - November 5, 2012

Answer the following questions to show that you support the statement.

1. State a known issue or concern in ICT regarding plagiarism.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

2. Explain the cultural effects of unethical behavior in ICT.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

Skill level 1

1
0
NR

Skill level 3

3
2
1
0
NR
3. Explain key measures that are used locally and globally to minimize the impact of ethical concerns in ICT.
QUESTION NINE: ENVIRONMENTAL ISSUES

ICT can help us in our daily lives, can improve our economy and productivity, but can also harm our environment. To help the Tonga Government in assessing the impact of ICT in our environment, you have to develop a sustainable plan of action by responding correctly to the following:


______________________________________________________________________
______________________________________________________________________

2. State an effective way to manage e-waste here in Tonga.

______________________________________________________________________
______________________________________________________________________

3. Explain the major parts of your plan (sustainable plan) that can address the environmental effects of ICT.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

Skill level 1
1
0
NR

Skill level 3
3
2
1
0
NR
THIS PAGE HAS BEEN DELIBERATELY LEFT BLANK.