Tonga National Form Seven Certificate
2014
INFORMATION TECHNOLOGY AND COMMUNICATION

QUESTION AND ANSWER BOOKLET

Time: 2 Hours

INSTRUCTIONS

1. Write your Student Personal Identification Number (SPIN) on the box on the right corner of this booklet and on page 19.
2. Answer **ALL QUESTIONS**. Write your answer in the spaces provided in this booklet.

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<th>Topics</th>
<th>Marks Allocated</th>
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<td><strong>TOTAL MARKS</strong></td>
<td><strong>100</strong></td>
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3. Check that this booklet contains page 2-19 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION

TOTAL MARKS
QUESTION 1: OPEN SOURCE AND PROPRIETARY SOFTWARE  
(7 marks)

You have been asked to advice your school with their software choices. You have been presented with two types of software and you need to assess them both.

a.  
i. Fill the table below by describing the key strength and key weakness of each software.

<table>
<thead>
<tr>
<th>Type of Software</th>
<th>Key Strength</th>
<th>Key Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Open Source</td>
<td>i.</td>
<td>ii.</td>
</tr>
<tr>
<td>2) Proprietary</td>
<td>iii.</td>
<td>iv.</td>
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</tbody>
</table>

(4 marks)

ii. Use the information above, to evaluate each types of software. Briefly discuss your recommendations on your preferred choice of software for the school.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

(2 marks)

b. Describe the importance of using the **uninstalling** software option if available.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

(1 mark)
QUESTION 2: MEDIA PRODUCTION  
(16 marks)

1. As a graphic designer for a local media company, you bought a personal computer (PC) with all the required components and software.

   a. Apart from the basic hardware components, briefly describe any special requirements that you may consider when selecting a graphic card for your computer.

   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   (1 mark)

   b. Explain TWO (2) key features of known graphical software that can be used for basic image editing.

   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   (2 marks)

   c. Explain the steps that you may need to take in designing, developing and implementing an animated object to be used in an advertisement by the local media company.

   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   (2 marks)
2. Using video processing software has given PC users the ability to easily create video files by using appropriate tools to capture specific events such as birthdays or weddings.

a. Pick a specific event and recommend TWO (2) video peripherals that you may need for creating a video project for the event.

Event: ________________________________________________________________

Video peripherals: ______________________________________________________
_____________________________________________________________________

(2 marks)

b. Explain the main function of the following video processing features when creating a video project.

i) Timeline: ____________________________________________________________
_____________________________________________________________________

ii) Storyboard: _________________________________________________________
_____________________________________________________________________

iii) Transitions: _________________________________________________________
_____________________________________________________________________

(3 marks)

3. Adobe Audition and Avid Pro tools are popular audio editing software. Such software are used by music producers to put together music projects very quickly.

a. Describe TWO (2) of the required audio peripherals that can be used for such music projects.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

(2 marks)
b. Describe the following audio editing features that are common with music editing projects. You can use specific examples to support your descriptions.

1) Audio file formats:
...

2) Audio effects:
...

(2 marks)

c. Adding your music (audio) project to a video with moving pictures can have a dramatic effect on the video. Briefly explain how to integrate your music track with a video.

...

...

...

(2 marks)
QUESTION 3: ETHICS OF ICT (10 marks)

1. Tonga is now enjoying the use of high speed Internet. However, some people believed that having access to high speed Internet increases ethical issues such as piracy, copyright and illegal use of intellectual property.

a. Describe the laws relating to piracy.
____________________________________________________________________________
____________________________________________________________________________
(1 mark)

b. Identify a major ethical component of piracy with the use of high speed internet here in Tonga. Discuss your views on why such ethical component is a major concern.

i. Ethical Component:
____________________________________________________________________________
____________________________________________________________________________

ii. Discussion:
____________________________________________________________________________
____________________________________________________________________________
(3 marks)

2. An important component for the ANZ bank with their huge data networking systems offering Internet banking is security.

a. Provide a type of computer security.
____________________________________________________________________________
____________________________________________________________________________
(1 mark)

b. Clearly explain TWO (2) effective computer security measures that you can recommend to the ANZ bank to use.
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
(2 marks)
3. One of the main advantages of electronic data is the fact that it can be stored for a longer period.

a. Describe how electronic data can be stored for many years.

____________________________________________________________________________
____________________________________________________________________________

(1 mark)

b. Explain why keeping of personal information in electronic copy for a longer period is a concerned?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

(2 marks)
QUESTION 4: PROGRAMMING  (16 marks)

A very successful village store is having problems knowing the daily total sales with its current sales recording system. The owner of the store is asking for your help in developing a computer program to quickly calculate the **total daily sales** on items purchased by clients.

a. (i) Use plain English to describe the problem need to be solved.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________  

(2 marks)

(ii) Fill the missing entries to complete the logic of the solution written in pseudocode.

1. Initialize the total daily sales to 0.
2. Prompt for the cost of the purchased item.
3. Enters (i) ____________________________
4. Repeat while the item is greater than 0.
   
   Add the item to the total daily sales.
   
   Prompt for the cost of the purchased item.
   
   Enters (ii)_____________________________
   
   End repeat while

5. Display (iii)___________________________  

(3 marks)

(iii) Most programmers prefer **top-down design** approach. Discuss your understanding of this approach in relation to the problem faced by the village store.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

(2 marks)
d. Describe the FOUR (4) main steps that you have to take in developing the computer program for the village store.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

(4 marks)

e. Use your own examples from the village store problem to demonstrate your understanding of program coding practices and programming requirement for the following item.

i. A variable

____________________________________________________________________________

(1 mark)

ii. A modular coding practice

____________________________________________________________________________

(1 mark)

iii. An indexed data structure

____________________________________________________________________________

(1 mark)

iv. A detail comment to explain a section of code

____________________________________________________________________________

(1 mark)

v. To confirm that the coding is correct

____________________________________________________________________________

(1 mark)
QUESTION 5: ENVIRONMENTAL ISSUES AND CLIMATE CHANGE  (10 marks)

1. Study the diagram below and answer the questions that follow.

   ![Diagram of e-waste](image)

   FACT: An estimated 50 million tonnes of e-waste is produced each year......which is equivalent to 1,333,334 humpback whales!

a. Describe TWO (2) effects of e-waste on the environment.
   
   i.  ______________________________________________________________________
   
   ii. ______________________________________________________________________

   (2 marks)

b. Discuss TWO (2) possible solutions that you can suggest for the problems described in question a. above.
   
   i.  ______________________________________________________________________
       ______________________________________________________________________
       ______________________________________________________________________

       (2 marks)

   ii. ______________________________________________________________________
       ______________________________________________________________________
       ______________________________________________________________________

       (2 marks)
2. One of the major concerns for ICT development in any country is having reliable and stable supply of electrical power.

a. Explain why the development in ICT is an issue for electrical consumption.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

(2 marks)

b. Discuss an effective option that you believe will help in reducing our electrical usage for ICT equipment.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

(2 marks)
QUESTION 6: WEBSITE DESIGN AND DEVELOPMENT (16 marks)

1. Study the webpage below and answer the questions that follow.

http://www.pennyjuice.com/htmlversion/whoispj.htm

a. Describe TWO (2) elements of good website design principles that are missing from this website.

i. ______________________________________________________________________

ii. ______________________________________________________________________

(2 marks)

b. Discuss TWO (2) major improvements that you can suggest for this website.

i. ______________________________________________________________________

ii. ______________________________________________________________________

iii. ______________________________________________________________________

(2 marks)

(2 marks)
c. Briefly explain the steps that you need to take in order to check that the website is ready and functioning well.


(2 marks)

2. In the early days of website development, web pages were designed mainly by using HTML tags. In recent years, the use of media files and database integration are now common with website development.

a. Clearly explain how you can setup a website to interact with its own database.


(2 marks)

b. Briefly explain how you prepare an audio file for a website.


(2 marks)

3. Cascading Style Sheets (CSS) is a style sheet language commonly used for displaying HTML elements.

a. Given below is a CSS style code for a piece of HTML file. Explain what the browser will display on the screen when loading the HTML file.

```html
<p style="color:green">
    This is the first paragraph
</p>
```


(2 marks)
b. The code shown below is a part of a CSS file. Briefly explain the purpose of using CSS file over HTML document.

```css
body {    font-family: arial;    }
h1 {        background-color:#CCC;
    border: 1px solid;    color:#39F; text-align: center;    }
table {    background-color: #F60;    border: 1px solid #39F; width: 100%;    }

td {    border: 0px; text-align: center;    
}
p {    color:#09F; text-indent: 20px;    }
```

(2 marks)
QUESTION 7: SAFE PRACTICE IN ICT

(10 marks)

1. In schools, computer equipment is rarely dangerous but the way it’s used can be a hazard to the health of students and staff.
   a. As a student, discuss ONE (1) of the major health issues that may affect you with using a computer for many hours.

   ______________________________________________________________________________
   ______________________________________________________________________________
   ______________________________________________________________________________
   (2 marks)
   b. With the issues discussed in question (a) (i) explain an effective practice that you can use to avoid the problem.

   ______________________________________________________________________________
   ______________________________________________________________________________
   ______________________________________________________________________________
   (2 marks)

2. Study the warning below and answer the questions that follow.

   What is this strange message from OIT at the top of the email that I just received?

   Email Phishing Warning

   a. Describe Phishing.

   ______________________________________________________________________________
   ______________________________________________________________________________
   ______________________________________________________________________________
   (1 mark)
b. Briefly explain how the phising technique demonstrated by the warning works.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

(2 marks)

3. Data security is a major concern for many organisations. You have been asked to provide the following security advices for the Ministry of Finance’s Data centre.

a. Describe a common physical security measure that is used by many organization.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

(1 mark)

b. Explain the process of disk storage encryption to protect data.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

(2 marks)
QUESTION 8: MICROPROCESSOR CONTROL  

1. Microprocessors are used to control many digital devices and can be programmed to respond to different parameters in a physical environment.

a. Describe the basic operation of a microprocessor.

____________________________________________________________________________
____________________________________________________________________________

(1 mark)

b. Explain how a microprocessor performs the basic operation of a digital device in terms of storage and processing.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

(2 marks)

c. Describe machine code.

____________________________________________________________________________
____________________________________________________________________________

(1 mark)

d. Use any known digital device to clearly explain how a programmable microprocessor interact with the hardware in order for the device to work.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

(3 marks)
2. There are different applications of embedded microprocessors in many manufactured products today. Identify a known manufactured product that you’re familiar with and use it to answer the question that follows.

a. Describe a situation where the embedded microprocessor is used by the product

Manufactured product: _____________________________________________________

Description: ________________________________________________________________
____________________________________________________________________________
(2 marks)

b. Explain why the software driving the embedded microprocessor must be error free.
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
(2 marks)

c. Briefly explain how the embedded microprocessor used by the product can detect and respond to a specific change in its environment.
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
(3 marks)

d. Describe clearly an appropriate output response from the microprocessor when a change has occurred in its environment.
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
(1 mark)
### INFORMATION AND COMMUNICATION TECHNOLOGY

#### 2014

**FOR MARKER’S USE ONLY**

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<th>Marker</th>
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