

MARKER CODE



Student Personal Identification Number

South Pacific Form Seven Certificate

INFORMATION AND COMMUNICATIONS TECHNOLOGY

2015

QUESTION and ANSWER BOOKLET

Time allowed: Two hours

INSTRUCTIONS

Write your **Student Personal Identification Number (SPIN)** in the space provided on the top right hand corner of this page.

Answer **ALL QUESTIONS**. Write your answers in the spaces provided in this booklet. If you need more space for answers, ask the Supervisor for extra paper. Write your SPIN on all extra sheets used and clearly number the questions. Attach the extra sheets at the appropriate places in this booklet.

Major Learning Outcomes (Achievement Standards)	Skill Level			Weight /Time
	Basic	Proficient	Advance	
InfA: Demonstrate understanding of; Open Source and Proprietary software; Designing and developing a product in two or more of the three defined areas of media by using available ICT tools	8 questions	2 questions		12% 26 min
InfB: Demonstrate understanding of the concepts related to ICT: piracy, security, copyright, longevity of electronic information storage, and intellectual property. Environmental problems generated by the technology; Employ established best practices when interacting with technology	1 question	2 questions	3 questions	14% 30 min
InfC: Design and construct a solution to a complex problem using established coding practices to demonstrate competency in coding using a programming language	6 questions	2 questions		10% 22 min
InfD: Design, develop, and test a website which incorporates data from a purpose built database to demonstrate understating of internet connectivity	7 questions	1 question		9% 20 min
InfE: Programming a microprocessor to sense, measure, record, and respond to a parameter of the physical environment to demonstrate understanding of the principles of control	8 questions	1 question		10% 22 min
TOTAL	30 Learning outcomes	8 Learning outcomes	3 Learning outcomes	120 min

Check that this booklet contains pages 1-24 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

Answer ALL questions

SECTION A

1. Here is a list of software.

GIMP, Photoshop, Audacity, MSWord, OpenOffice, Excel, Outlook, Chrome, Firefox, Linux, Windows7, Moodle, Blender, FreeCAD, Inkscape, Apache, myPHP, Acrobat, Moviemaker, Access, MSWorks, Illustrator, AutoCAD, Powerpoint, Dreamweaver

Select two Open Source software items and two Proprietary software items from the list and write them in the table below in the correct column.

Open Source software	Proprietary software

Basic	Level
Excellent	
Weak	
NR	

2. Here is a table that contains some of the characteristics of software.

a. Circle the items that relate only to Open Source software.

Usually has a GNU licence agreement	Must be purchased	Licenced to be used on only one computer
Source code is not available	Used only in game development	Free to download and install
Can be modified and then re-distributed	Source code is available	Usually has no support service
Source code can be modified	Used only by businesses	Illegal to modify and redistribute

Basic	Level
Excellent	
Weak	
NR	

b. Choose one item you have circled and describe its strength within the Open Source model of software.

Item from table: _____

Strength: _____

Proficient	Level
Excellent	
Low	
Weak	
NR	

3. Here are some of the specifications of two graphics cards.

Graphics Card 1	Graphics Card 2
Bus Standard: PCI Express 3.0 Video Memory: GDDR5 2GB Engine Clock Memory Clock: 5600 MHz (1400 MHz GDDR5) Memory Interface: 256-bit Resolution D-Sub Max Resolution: 2048x1536 DVI Max Resolution: 2560x1600 Interface D-Sub Output : Yes x 1 DVI Output : Yes x 2 HDMI Output : Yes x 1 HDCP Support : Yes	Bus Standard PCI Express 2.1 Video Memory DDR3 1G Engine Clock 650 MHz Memory Clock 800 MHz (400 MHz DDR3) Memory Interface 64-bit Resolution D-Sub Max Resolution 2048x1536 DVI Max Resolution 2560x1600 Interface D-Sub Output Yes x 1 DVI Output Yes x 1 HDMI Output Yes x 1 HDCP Support Yes

a. Circle the name of the graphics card which has the higher performance:

Graphics Card 1

Graphics Card 2

b. Give **two** reasons why the card you named is the card with the higher performance.

1. _____

2. _____

Basic	Level
Excellent	
Weak	
NR	

Basic	Level
Excellent	
Weak	
NR	

4. Here are two drawings of an eye. One drawing is an open eye, the other drawing shows the same eye closed.



Explain how you would use these two drawings to produce an animation of an eye continuously opening and closing. In your answer describe or name the software you would use, and the process you would use to create the animation.

Proficient	Level
Excellent	
Low	
Weak	
NR	

5. a. Name or describe one computer peripheral device you used this year during the construction of your integrated media project.

- b. Describe how you used the peripheral you named in question 5(a).

Basic	Level
Excellent	
Weak	
NR	

Basic	Level
Excellent	
Weak	
NR	

6. During the year you created an integrated media output.
- a. Describe the subject of your graphic or video file **before** you started to process it with software.

Basic	Level
Excellent	
Weak	
NR	

- b. You processed your graphic or video file with software. Describe one advanced process you applied to your graphic or video file.

Basic	Level
Excellent	
Weak	
NR	

SECTION B

1. Here is a table that contains some of the ethical issues relating to ICT, and a description of the issue. Draw a line from the name of each issue to its description.

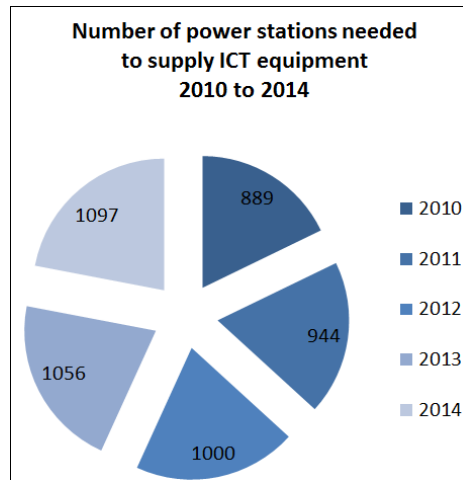
Name of Issue	Description of Issue
Security	The ownership of ideas, inventions, patents, and other original creations
Copyright	Once a file is stored or loaded onto an internet site there is no way to completely retrieve or permanently destroy that file.
Intellectual Property Rights	Prevention of the loss or theft of information or data from a computer system
Longevity of electronic information storage	The right to reproduce and distribute software, electronic documents, and other computer files.

Basic	Level
Excellent	
Weak	
NR	

2. Software piracy is another ethical issue in ICT. Write an explanation of software piracy. Structure your explanation so that it addresses each of the following questions:

- What is software piracy?
- How has information technology made piracy possible?
- Who benefits from piracy?
- Who is hurt by piracy?
- What can be done to reduce the occurrence of piracy?

3. Here is a chart showing the number of power stations needed to supply electricity to Information and Communication Technology equipment worldwide from 2010 to 2014.



Put a tick in each box that is alongside those sentences which make correct statements about the effect of ICT on the environment.

Tick if correct	
<input type="checkbox"/>	In 2014 over one thousand power stations were continuously generating electricity just to run computers and other ICT equipment.
<input type="checkbox"/>	Most power stations burn coal or oil to produce electricity.
<input type="checkbox"/>	The exhaust from the burning of fuel from a power station contains carbon dioxide.
<input type="checkbox"/>	The exhaust from coal burning power stations is only water which condenses and falls as rain.
<input type="checkbox"/>	The release of large amounts of carbon dioxide into the atmosphere produces the green-house effect which is producing climate change.
<input type="checkbox"/>	Most power stations use renewable energy like wind, so there is no impact on the environment.
<input type="checkbox"/>	The demand for electricity from ICT equipment continuously increased from 2010 to 2014.
<input type="checkbox"/>	The release of large amounts of carbon dioxide into the atmosphere has no effect on the environment.
<input type="checkbox"/>	ICT equipment only uses a small amount of electricity and is not an important contributor to climate change.

Proficient	Level
Excellent	<input type="checkbox"/>
Low	<input type="checkbox"/>
Weak	<input type="checkbox"/>
NR	<input type="checkbox"/>

5. An email is sent to you stating that you have won a lottery in a foreign country. Explain in detail what this email's real purpose is, and how you should deal with the situation.

Proficient	Level
Excellent	
Low	
Weak	
NR	

6. Discuss security issues associated with ICT by;
- describing **three security issues** associated with ICT,
 - explaining how the risk of each issue can be reduced.

Advanced	Level
Exceed	
Excellent	
Moderate	
Low	
Weak	
NR	

SECTION C

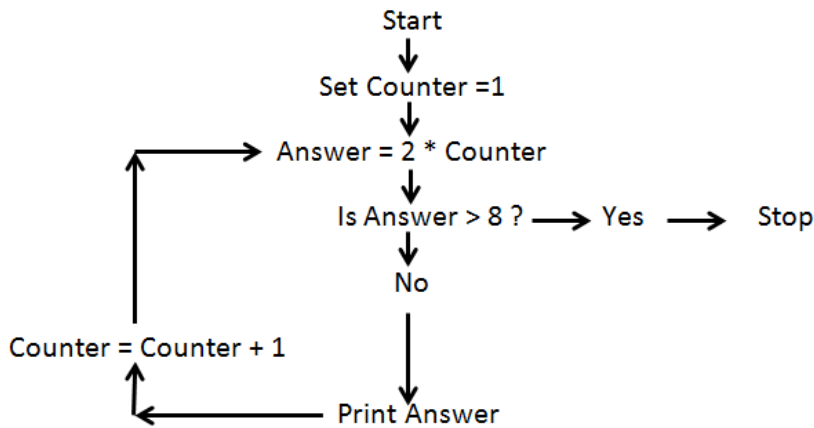
1. The six steps of programming, in random order are:

Test and Debug; Define the Output; Solve the Problem using logical methods; Understand the Problem; Code in the solution; Document.

Write the six steps of programming in the correct order.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

2. Here is a flowchart of a program.



a. Describe as plainly as you can what this program is designed to do when it runs.

-
-
-
-
-
-
-
-
-
-

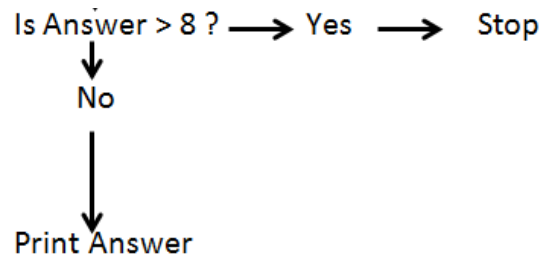
Basic	Level
Excellent	
Weak	
NR	

Proficient	Level
Excellent	
Low	
Weak	
NR	

b. Write down everything that the computer prints when the program runs.

Basic	Level
Excellent	
Weak	
NR	

3. Here is a section of the program from question 2.



Use a programming language to code this section of the flowchart:

Proficient	Level
Excellent	
Low	
Weak	
NR	

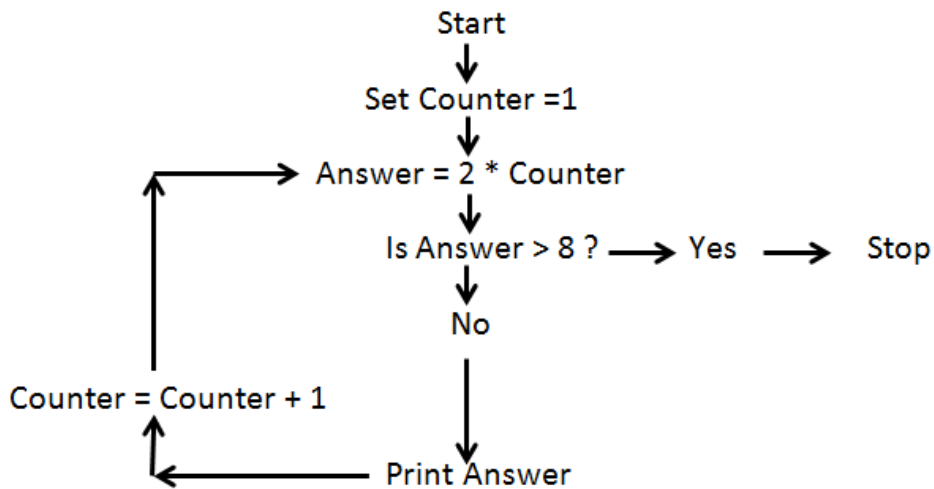
4. Here is the second line of code from the flowchart from question 2.

Set Counter = 1

Write a suitable programming comment to describe the purpose of this line.

Basic	Level
Excellent	
Weak	
NR	

5. Here is the flowchart shown again from question 2.



a. List all the variables that are identified in this flowchart.

Basic	Level
Excellent	
Weak	
NR	

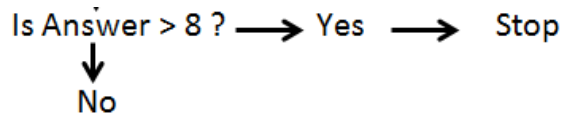
- b. Choose one of the variables you identified in question 5(a). Describe the purpose of that variable.

Variable: _____

Purpose: _____

Basic	Level
Excellent	
Weak	
NR	

- c. If the following section is deleted from the flowchart when the program is coded, what does the program do when it runs?

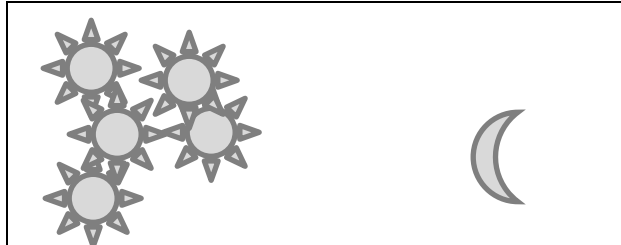


Basic	Level
Excellent	
Weak	
NR	

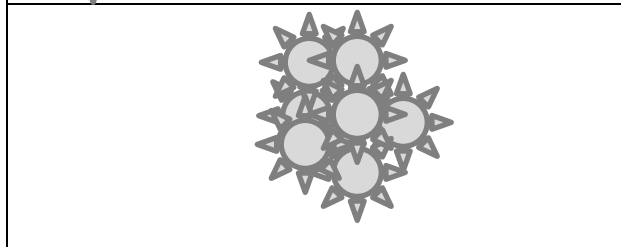
SECTION D

1. Three principles of good website design are **proximity**, **alignment**, and **contrast**. Draw a line from the name of the principle to the diagram that best illustrates that principle.

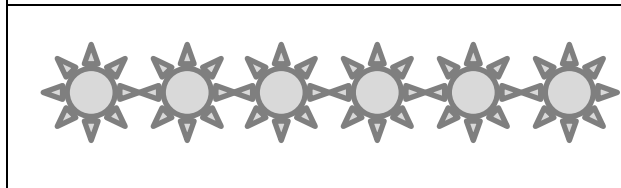
Proximity



Alignment



Contrast



Basic	Level
Excellent	
Weak	
NR	

2. In the left column below is a picture of a webpage. In the right column, alongside the picture, is the HTML code used to create the webpage.

Draw a rectangle around each **section** of the webpage. Then draw a rectangle around the code that creates each section. Finally draw a line between each pair of rectangles to show where the code is used in the webpage.

Information and Communication Technology



Laptops are a tool in *ICT*.

ICT is used everywhere

Read More:

[Desktop](#)

[SmartPhone](#)

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD
HTML 4.01//EN"
"http://www.w3.org/TR/html4/strict.dtd">
<html>
<head>
<title>
Information and Communication
Technology
</title>

<link href="style.css" rel="stylesheet"
type="text/css">
</head>
<body>

<div id="wrapper">

<div id="header">
<h1> Information and </h1>
<h1> Communication Technology </h1>
</div>
<div id="maincontent">

<p>Laptops are a tool in <i>ICT.</i></p>
</div>

<div id="navigation">
<h3>Read More:</h3>
<p><a href="page-2.html">
Desktop</a></p>
<p><a href="page-3.html">
SmartPhone</a></p>
</div>

<div id="footer">
<h3>ICT is used everywhere</h3>
</div>
</div>
</body>
</html>
```

Proficient	Level
Excellent	
Low	
Weak	
NR	

3. The HTML code for the webpage shown on the previous page is repeated here.

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
"http://www.w3.org/TR/html4/strict.dtd">
<html>
<head>
<title>
Information and Communication Technology
</title>

<link href="style.css" rel="stylesheet" type="text/css">
</head>
<body>

<div id="wrapper">

<div id="header">
<h1> Information and </h1>
<h1> Communication Technology </h1>
</div>
<div id="maincontent">

<p>Laptops are a tool in <i>ICT.</i></p>
</div>

<div id="navigation">
<h3>Read More:</h3>
<p><a href="page-2.html"> Desktop</a></p>
<p><a href="page-3.html"> SmartPhone</a></p>
</div>

<div id="footer">
<h3>ICT is used everywhere</h3>
</div>
</div>
</body>
</html>
```

- a. Name the five cascading style sheet divisions used in the file **style.css**

Basic	Level
Excellent	
Weak	
NR	

b. Write down the HTML code for one of the hyperlinks on the page.

Basic	Level
Excellent	
Weak	
NR	


c. Describe how to test a hyperlink.

Basic	Level
Excellent	
Weak	
NR	

d. Describe how to validate the HTML code of the webpage.

Basic	Level
Excellent	
Weak	
NR	

4. Here is one record held in a computer store's database.

Picture	Description	Price
	Laptop with high speed solid state memory	2599.00

a. Describe how to create a webpage that will display this information in a suitable way for on-line shoppers.

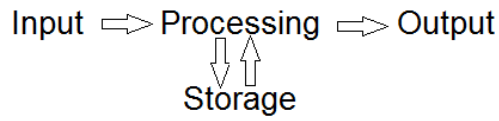
Basic	Level
Excellent	
Weak	
NR	

b. Describe one advantage of using a database when constructing a webpage for a store.

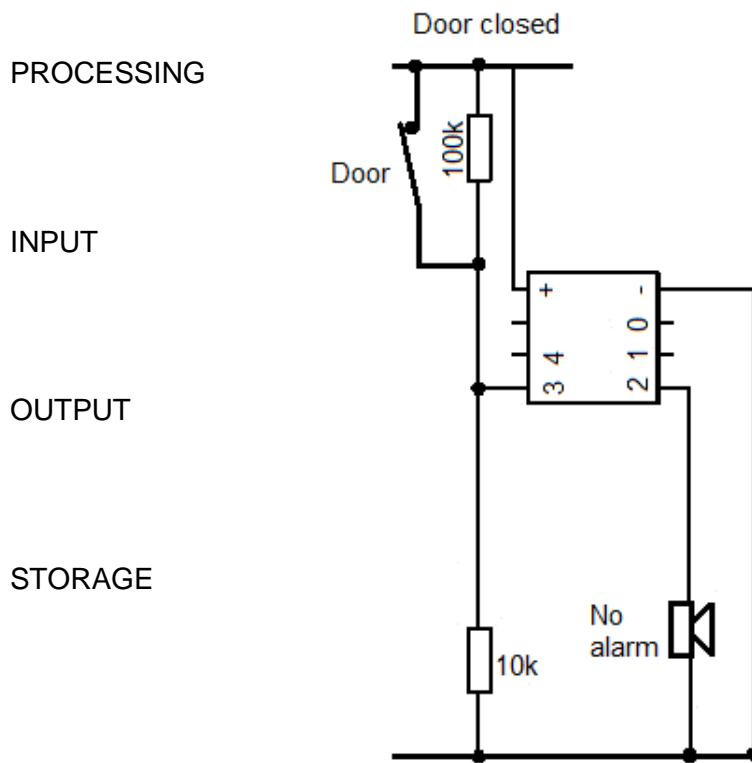
Basic	Level
Excellent	
Weak	
NR	

SECTION E

1. A microprocessor is programmed to sound an alarm when a door is opened.
 - a. A microprocessor follows this standard computational model:



The diagram below shows the microprocessor with the door shut. Draw a line from the four labels beside the diagram to the part of the diagram to which it belongs.



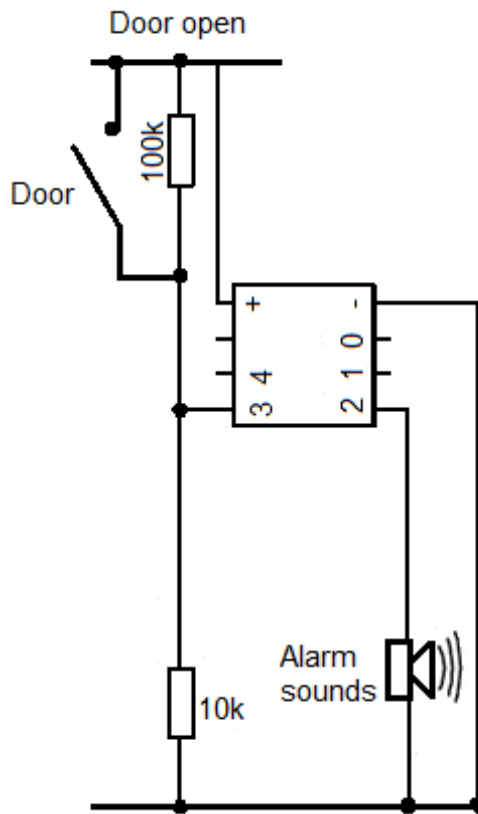
- b. When the door is shut the value at pin 3 is high (HI or ON or 1) and the value at pin 2 is low (LO or OFF or 0).

Use a microprocessor programming language to write some lines of code that will detect pin 3's condition and then control pin 2.

Basic	Level
Excellent	
Weak	
NR	

Basic	Level
Excellent	
Weak	
NR	

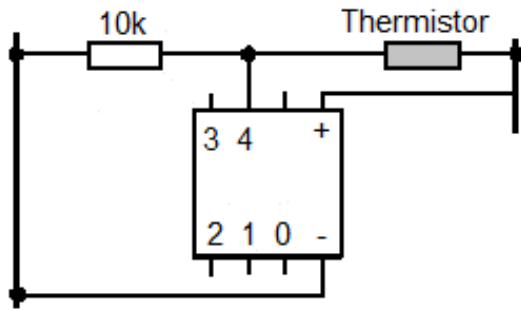
- c. When the door opens pin 3 goes low and the alarm sounds. Here is the diagram.



The alarm sounds when pin 2 is high. Write a program in a programming language that will continuously check the door, and will sound the alarm if the door opens.

Proficient	Level
Excellent	
Low	
Weak	
NR	

2. A thermistor changes resistance as the temperature changes. Here is a thermistor connected to the input of a microprocessor.



The temperature of the air can be recorded every 15 minutes over a whole day (24 hours) using this microprocessor and thermistor.

- a. Where is the data stored during the 24 hours that the temperature is being measured?

Basic	Level
Excellent	
Weak	
NR	

- b. What other hardware and software do you need to generate the graph?

Basic	Level
Excellent	
Weak	
NR	

- c. How can you transfer the data to the software you named in question 2(b)?

Basic	Level
Excellent	
Weak	
NR	

d. To draw the graph you also need the time at which each temperature measurement was made. Describe one way you can get the time data.

Basic	Level
Excellent	
Weak	
NR	

3. Microprocessors are embedded in many things used in everyday life.

a. Describe one situation, or piece of equipment, where an embedded microprocessor is used.

Basic	Level
Excellent	
Weak	
NR	

b. Why it is important that the code used in an embedded microprocessor is free from errors?

Basic	Level
Excellent	
Weak	
NR	