

MARKER CODE



Pacific  
Community  
Communauté  
du Pacifique



Student Personal Identification Number

# South Pacific Form Seven Certificate

## INFORMATION AND COMMUNICATIONS TECHNOLOGY

2016

### 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 Band			Weight /Time
	Basic 1	Proficient 2	Advanced 3	
<b>InfA</b> 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 items	2 items		12% 26 min
<b>InfB</b> Demonstrate understanding of the concepts related to ICT: piracy, security, copyright, longevity of electronic information storage, and intellectual property: Discuss in depth the environmental problems generated by the technology; Employ established best practices when interacting with technology	1 item	2 items	3 items	14% 30 min
<b>InfC</b> Design and construct a solution to a complex problem using established coding practices to demonstrate competency in coding using a programming language	6 items	2 items		10% 22 min
<b>InfD</b> Design, develop, and test a website which incorporates data from a purpose built database to demonstrate understating of internet connectivity	7 items	1 item		9% 20 min
<b>InfE</b> 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 items	1 item		10% 22 min
<b>TOTAL NUMBER OF ITEMS</b>	<b>30</b> items	<b>8</b> items	<b>3</b> items	<b>55%</b> <b>120 min</b>

Check that this booklet contains pages 1-22 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. Compare two ways that Open Source software differs from Proprietary software. Show the comparisons in this table. An example is shown in the first row of the table.

Open Source	Proprietary
Usually no user support available from the creators of the software	A Help Desk is often available to assist users.

2.  
a. Describe one strength and one weakness of Open Source software.

Strength \_\_\_\_\_  
\_\_\_\_\_

Weakness \_\_\_\_\_  
\_\_\_\_\_

- b. Describe one strength and one weakness of Proprietary software.

Strength \_\_\_\_\_  
\_\_\_\_\_

Weakness \_\_\_\_\_  
\_\_\_\_\_

**Skill Level 1**

Basic	
Weak	
NR	

**Skill Level 1**

Basic	
Weak	
NR	

**Skill Level 1**

Basic	
Weak	
NR	



4. You are going to buy and install a new graphics card into a computer. List or describe three specifications of the card that you would check before selecting it.

1. \_\_\_\_\_

\_\_\_\_\_

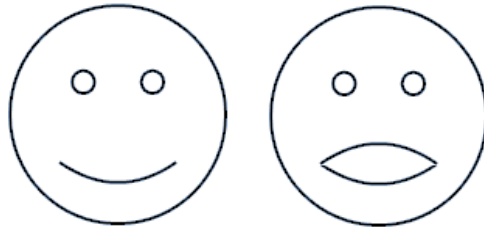
2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

\_\_\_\_\_

5. Here are two drawings of a face.



- a. Explain how you would use these two drawings to produce an animation of a talking face that never stops opening and closing its mouth.

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Skill Level 1	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	

- b. Animations can be large file sizes. Describe how you could process this single face so that you create the same talking face animation (as question 5a), but with a smaller animation file size.




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Skill Level 2	
Proficient	
Basic	
Weak	
NR	

6.  
a. Describe the purpose of a computer peripheral.

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Skill Level 1	
Basic	
Weak	
NR	

- b. Name one computer peripheral you used this year.

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Skill Level 1	
Basic	
Weak	
NR	





2. Here are descriptions of three issues related to ICT. Name or describe each issue.

Issue 1: The ownership of ideas for new inventions.

Name: \_\_\_\_\_

Issue 2: There is no way to completely delete all copies of a file that has been uploaded to the internet.

Name: \_\_\_\_\_

Issue 3: The right to copy and distribute computer files.

Name: \_\_\_\_\_

3. Discuss why ICT equipment is contributing significantly to climate change. In your discussion:

- explain the relationship between ICT equipment and the emission of carbon dioxide into the atmosphere.
- explain why the growth in the use of ICT equipment is aggravating the issue of carbon dioxide emission.
- describe two things an ICT user can do that will reduce the emission of carbon dioxide which is related to the use of ICT equipment.

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Skill Level 2	
Proficient	
Basic	
Weak	
NR	

Skill Level 3	
Advanced	
Proficient	
Basic	
Weak	
NR	





4. When sitting at a computer your feet should be flat on the floor or on a footrest. Briefly describe two other aspects of the way you should sit at a computer so that you remain healthy.

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Discuss why the manufacture of new ICT equipment, and the disposal of old ICT equipment, is not an environmentally sustainable process.

In your discussion

- name two raw materials used in the manufacture of new ICT equipment.
- describe why these two particular materials are used.
- explain why one current method of disposal of old ICT equipment is environmentally damaging.
- describe one environmentally sustainable method of disposal of old equipment.

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Skill Level 1	
Basic	
Weak	
NR	

Skill Level 3	
Advanced	
Proficient	
Basic	
Weak	
NR	



**SECTION C**

1. A flowchart is one tool used in programming. Describe the purpose of a flowchart.

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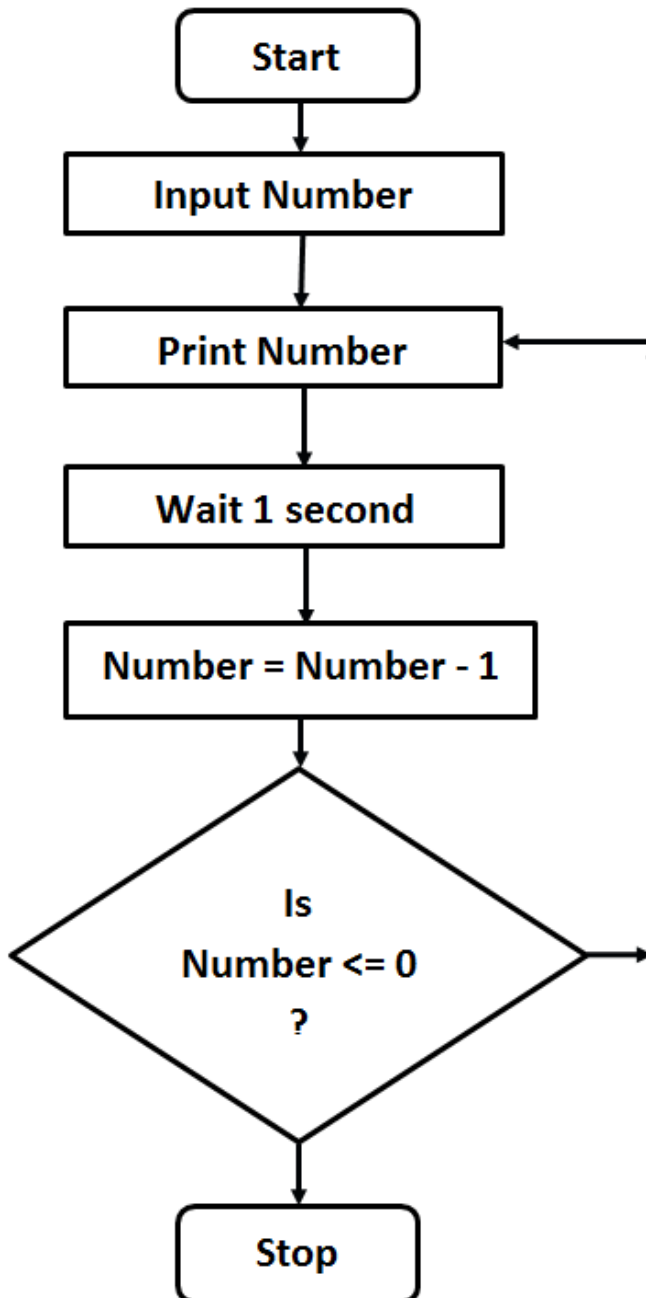


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2. Refer to the following flowchart to answer questions a to d.



- a. The flowchart should have the words YES and NO included on it. Write the words YES and NO in their correct places on the flowchart.

Skill Level 1	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	

b. Write down the phrases from the sub-part of the flowchart where these things are occurring.

i) Output

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ii) Decision

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iii) Processing

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c. Describe in detail the purpose of the program in the flowchart.

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d. If you input the number 8 write down all of the program's output till it stops.

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Skill Level 1	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	

Skill Level 2	
Proficient	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	



**SECTION D**

1. Here are some of the html code used to construct a webpage. The code has been separated into five parts. The webpage is shown alongside.
  - a. Draw a line from each of the five parts of code to the section on the website that the code generates. Draw a rectangle around the section on the website that the code controls.

<code>&lt;div id="wrapper"&gt;</code>
<code>&lt;header&gt; &lt;h1&gt; Attendance &lt;/h1&gt; &lt;/header&gt;</code>
<code>&lt;article&gt; &lt;img src="pics/[student name].jpg"&gt; &lt;p&gt;Attendance record for &lt;/p&gt; &lt;p&gt;&lt;i&gt;[student name]&lt;/i&gt;&lt;/p&gt; &lt;/article&gt;</code>
<code>&lt;nav&gt; &lt;p&gt;&lt;a href="index_html5.html"&gt;Return to Front Page&lt;/a&gt;&lt;/p&gt; &lt;p&gt;&lt;a href="page-2.html"&gt;Get [student name] school report&lt;/a&gt;&lt;/p&gt; &lt;/nav&gt;</code>
<code>&lt;footer&gt; &lt;p&gt;&lt;i&gt;Data on this page is from the Attendance Register&lt;/i&gt;&lt;/p&gt; &lt;/footer&gt;</code>

## Attendance

[Return to Front Page](#)

[Get \[student name\] school report](#)



Attendance record for  
[student name]

*Data on this page is from the Attendance Register*

Skill Level 1	
Basic	
Weak	
NR	

- b. The html code in 1(a) has an associated CSS file. How can you tell this from the html code shown?

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- c. The student's photo is 500 pixels wide. Here are three lines of the CSS code that control the photo on the website. Complete the CSS code for each line.

Width: \_\_\_\_\_

Float: \_\_\_\_\_

Color: # \_\_\_\_\_

Skill Level 1	
Basic	
Weak	
NR	


Skill Level 1	
Basic	
Weak	
NR	

- d. The purpose of the website is for parents to see information about their son or daughter. Here is the webpage with attendance data included.

## Attendance

[Return to Front Page](#)

[Get \[student name\] school report](#)



Attendance record for  
*[student name]*

Mon	Tue	Wed	Thu	Fri
P	P	Abs	Abs	P

*Data on this page is from the Attendance Register*

- i. How many fields of the school's database are shown in the **Attendance record** on this webpage?

\_\_\_\_\_

- ii. Circle one other place on the page where text data from the school's database will be displayed.

Is the photo of the student also a field in the school's database? Circle the correct answer.

**YES      NO**

- e. Describe two advantages of using a database when constructing the Attendance webpage.

1. \_\_\_\_\_

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\_\_\_\_\_

2. \_\_\_\_\_

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\_\_\_\_\_

Skill Level 1	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	

Skill Level 2	
Proficient	
Basic	
Weak	
NR	



2. Here is a picture illustrating four principles of good design.



Describe how each of the four principles listed below is shown in the picture.

a.

Contrast: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Repetition: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b.

Proximity: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Alignment: \_\_\_\_\_

\_\_\_\_\_

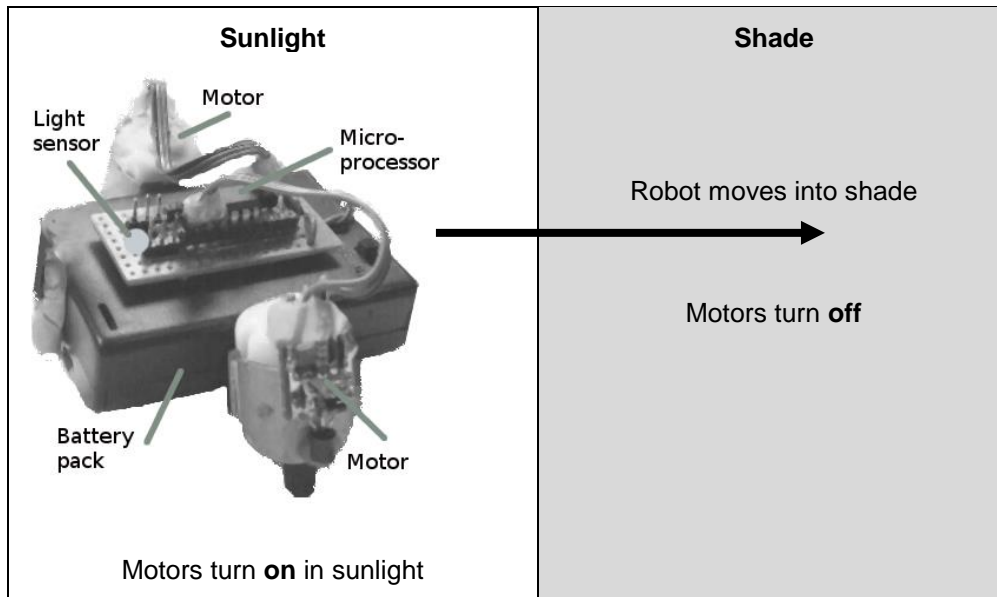
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Skill Level 1	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	

## SECTION E

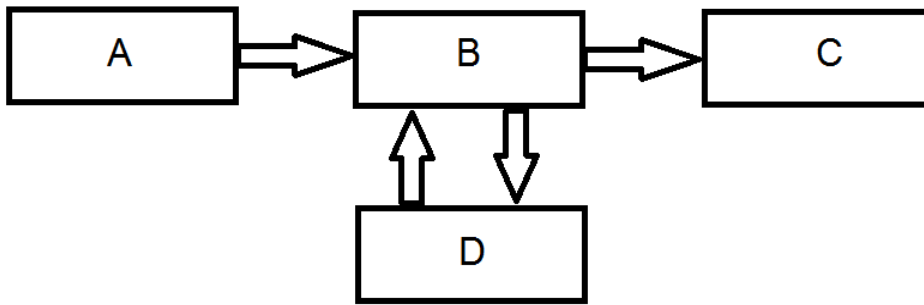
1. Here is a diagram of a shade-seeking robot. When the motors turn on the robot moves forward. The microprocessor controls the motors.



Draw a flowchart, or write pseudocode, or use some other way to show the logic of the program that the microprocessor uses.

Skill Level 1	
Basic	
Weak	
NR	

2. Here is a diagram that represents the way a microprocessor works.



a. In the table below draw a line from the letter in the left hand column to the word in the right hand column that identifies each function of the microprocessor.

A	Storage
B	Output
C	Input
D	Processing

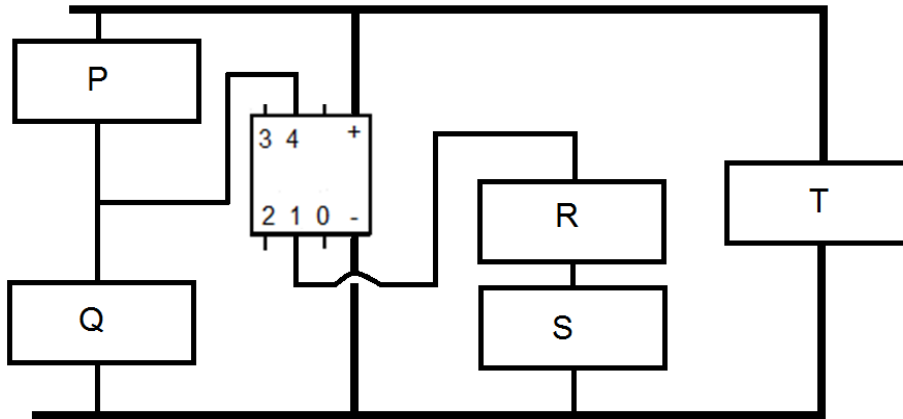
b. In the shade-seeking robot of question 1 where does each of these four things occur?

Item	Location of item
Storage	
Output	
Input	
Processing	

Skill Level 1	
Basic	
Weak	
NR	

Skill Level 1	
Basic	
Weak	
NR	

3. Here is a circuit diagram of the shade-seeking robot with the microprocessor's pins labelled 0 to 4.



Here is a table listing some of the components that can be used with a microprocessor:

speaker	battery pack	diode
amplifier	thermistor	transmitter
motor	light dependent resistor	Switch
resistor	meter	LED
LDR	screen	Microphone
transistor	light emitting diode	

- a. What circuit components are connected in the places marked with letters P to T?

Letter	Component to connect
P	
Q	
R	
S	
T	

Skill Level 1	
Basic	
Weak	
NR	

- b. The robot moves forward when it is in sunlight, and stops when it is in shade. Use the microprocessor programming language you learned this year. Write a program that will make the robot move in sunlight and stop in shade.

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Skill Level 2	
Proficient	
Basic	
Weak	
NR	

4. The robot moves forward when it is in sunlight, and stops when it is in shade. Describe how the robot could be altered so that it moves forward when a loud noise is occurring, and stops when the noise stops.

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Skill Level 1	
Basic	
Weak	
NR	

5. Many smoke and fire alarms use microprocessors. Why is it important that the program they contain is error free?

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Skill Level 1	
Basic	
Weak	
NR	

6. Describe one other place where microprocessors are used as control devices.

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Skill Level 1	
Basic	
Weak	
NR	

7. Describe the purpose of machine code in a microprocessor.

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Skill Level 1	
Basic	
Weak	
NR	